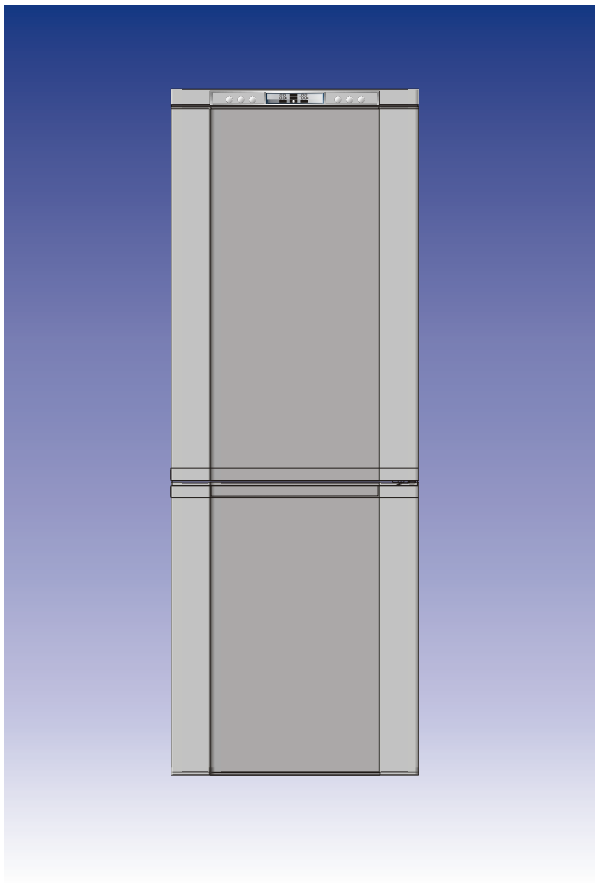
SAMSUNG

MODEL:
RL33EBMS

SERVICE MANUAL

Electric Refrigerator



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1. PREVENTIVE ACTIONS

1-1 Safety Precautions

Only qualified technicians who have full command and knowledge of the cooling system and safety inspection are allowed to deliver the maintenance service as specified on the manual.

⚠ Please be sure to keep the work place ventilated and safe as this product adopts the combustible and explosive R600a refrigerant.

1−1−1. Prior to repair, please pull the plug out of the socket from the wall to disconnect the power to hold the human and wealth harmless.

1−1−2. Do not make any by-pass or circuit change attempt without manufacturer's prior suggestion.

1−1−3. No prelonged cable or double terminal board is recommended.

1−1−4. For human safety, this procut must be properly earthed. But phone lines and gas pipes are not recommended for earthing.

1-2 Preparations Before Maintenance

1−2−1. Direct plug in-and-out is recommended when replacing the relay that attaches to the compactor lead terminal. When inserting and pulling the plug, relay wobbling will more likely destroy the compactor terminals or relay.

1−2−2. Restart is not allowed within 5 minutes after power off. Immediate plug in-and-out will disable the restart.

⚠ This represents the materials with regard to the A/C circuit and spare part safety.

☞ This represents the materials included in the appliance maintenance.

1-3.Warning

1-3-1 Pay attention to the safety during maintenance as R600a refrigerant is combustible and explosive.

1-3-2 Keep the work place well ventilated without fire source and combustible and explosive objects arround during the maintenance of R600a refrigerator.

1-3-3 Make sure to lay the R600a clean during CYCLE maintenance (ensure the system unblocked by inflating nitrogen under HV and LV state.)

1-3-4 Fire soldering is not allowed until the work place is ventilative without R600a left in the CYCLE.

1-3-5 When no leakage and blocking are found by nitrogen inflation, shut the fire by the soldering fulid pipe (valve core available at one end) at the process pipe.

1-3-6 Adding the fulid by vacuumizing the liquid pipe and screw on the nut.(no fire, appliance, MP3, walkman and mobile phone are allowed during operation)

Note: LOCK RING is only used for pipe connection rather than pipe sealing after adding fluid. If special tools are available for liquid releasing, lead the R600a via pipes to the designated location.

1-4 Special Tools During Maintenance

1)Liquid Adding Pipe

2)Turn off the valve core

3)Solder the pipe onto the compactor

4) Turn on the valve core tightly

5)Vacuumize and add liquid

6) Onload the pipe nut

1-5 Maintenance Method

1.Maintenance Environment

1-1 Pay attention to the safety during maintenance as R600a refrigerant is combustible and explosive.

1-2 Keep the work place well ventilated without sparks and hot resource around when repairing the refrigerator's cooling system. Soldering or heating are not recommended. No smoke also.

1-3 Fire soldering is not allowed until the work place is ventilated without R600a left in the CYCLE.

2.Refrigerant Remnants Discharging

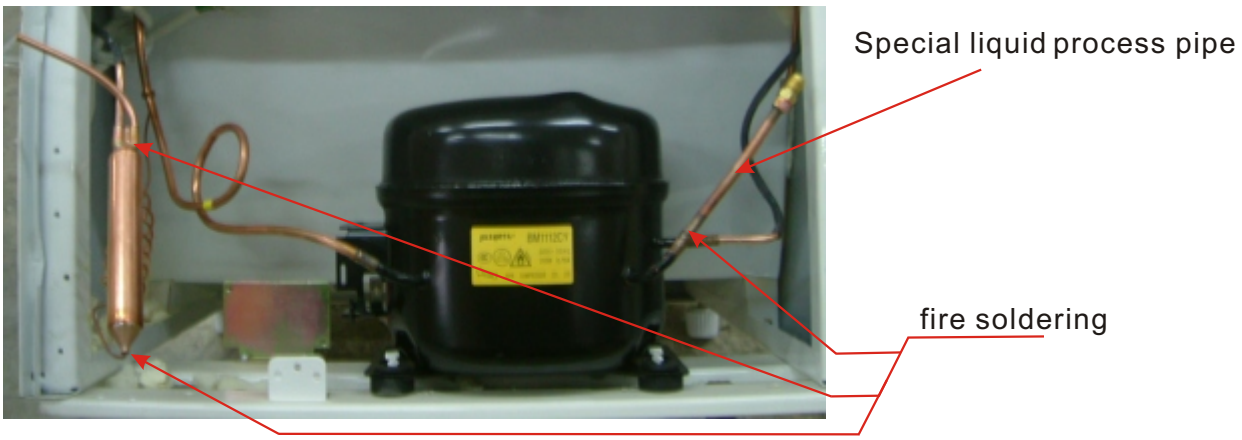
Prior to reinjecting the refrigerant, conduct the trouble inspection. If the leaking point is found, eject the remained R600a out.

2-1 Open the compactor back cover, reel out the two process pipes and cut them by a knife or pilers to discharge the remained R600a refrigerant.(See figure 1)

2.2 Leave the refrigerant for a while (about 30 minutes) and connect to the dry nitrogen to ensure R600a refrigerant is completely discharged and the system are unblocked.

3.Vacuumizing

3-1 After all the refrigerants are out, repair the leaking points and replace the driers and process pipes. The compactor must be fitted with the special liquid process pipes (see below figure)



3-2 Close the process pipe on the dry filter and connect the compactor's special liquid process pipe to a vacuum pump for vacuumizing.

4.Reinjection of Refrigerant

4-1 When the pipe is entirely vacuumized, fill in the R600a refrigerant in the quantity as shown on the brandplate, and weigh by the electric balance. The injection quantity must be exact to the evel of ±2g.

4-2 No fire is allowed around when adding liquid. No pocket mobile phone and walkman are allowed during operation.

4-3 Turn on the pipe nut when finishing the liquid adding, and sort the pipes to avoid the abnormal noise.

2. PRODUCT SPECIFICATION

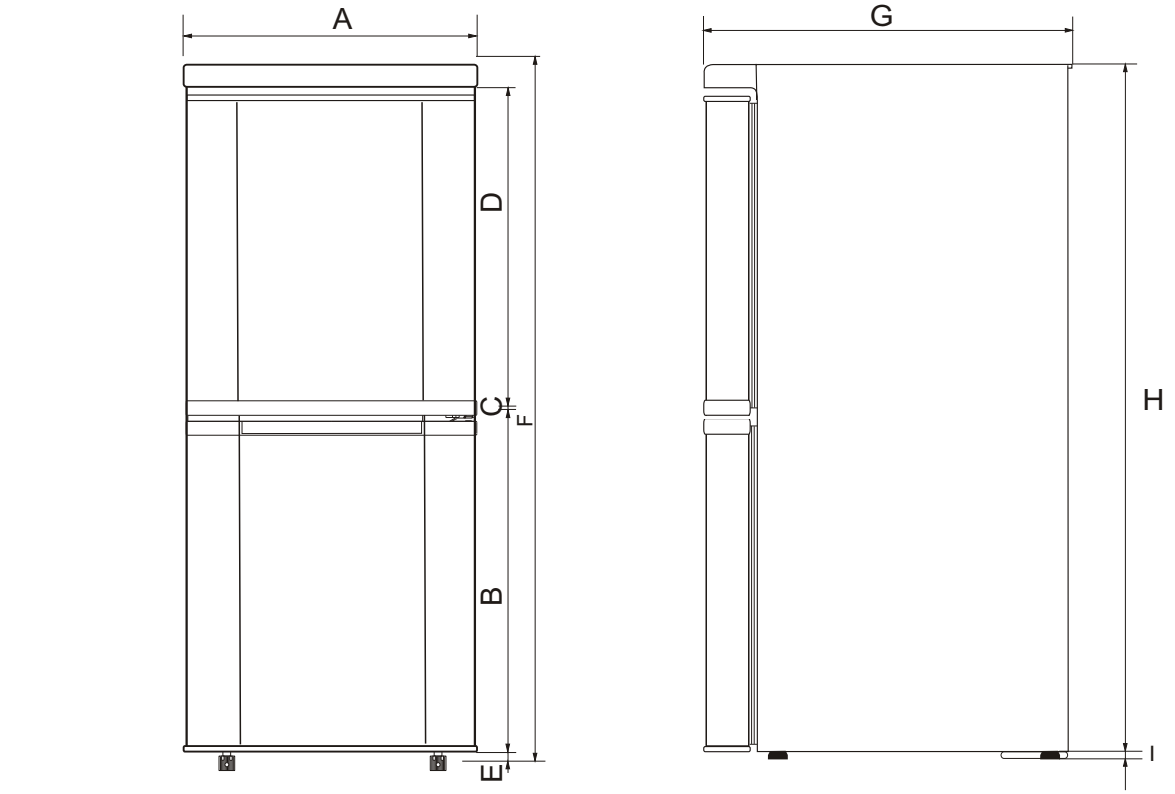
Model			RI33EBMS
Volume (ISO)	N.V. (L)	Total volume	290
		Freeze compartment	90
		Refrigerating compartment	200
Size	Width (mm)		595
	Deepth(mm)		646
	Height(mm)		1768
N.W. (Kg)			76
Cooling mode			Compartment cooling
Control & display	Temp control type		Electronic
	Temp display type		Digital
Functions	Fast refrigeration		○
	Fast freeze		○
	Standard run		○
	Refrigerating off		○
	Door opening alarm		○
Refrigerating compartment			
Shelf			toughened glass shelf
Fruit& vege. Tray/partition			1EA/1EA
Spotlight	Lamp		1EA
Bottle guard	dairy guard	Milk guard	2EA
		Big bottle guard	1EA
		Egg guard	1EA
Bottle guard partition			1EA
Egg tray			1EA
Freeze compartment			
Drawer	Three-piece set		3EA
Ice box	Revolving ice box		1EA
Vesicant			Cyclopentane
Refrigerant			R600a(60g)

3. SPEC. AND CRITERION OF ELECTRIC & COOLING PARTS

Item			SPEC
Model			RI33EBMS
Power			230V/50Hz
Cooling cycle	Compressor	Model	JIA XIPERA ZBS1115CY
		Start mode	RSCR
		Oil type	HC-10
	Evaporator		Finned
	Condenser		Natural convection
	Drying filter		Molecular sieve XH-9
	Capillary		ID 0.72L2800mm
Electric spare parts	Sensor	Freeze	502AT
		Refrigerating	502AT
		Defrost	502AT
		Environmental temp	502AT
	Heater	Defrost	280W/220V
		Air heater	7W/220V
		Return-air heater	15W/220V
	Fuse	Defrost	250V/10A,72±4℃
	Defrost	Defrost time	3-19 hours (vary with environmental temp.)
			4hours±10min (first cycle)
		Hold time	7min ±2 min
	Capacitor	Run capacitor	400VAC/4.5uF
	Overload protector	Model	B52-120/B
		ON temp	55~70℃
		OFF temp	115~125℃
	PTC relay	Model	QP2-12/B
		Resistance	9~17Ω
	Lamp	Refrigerating compartment	240V/15W
	Gear motor	Freeze compartment	220~240VAC,50/60Hz MN71MNBA6(M2LA49Z)
	Door light switch		HC-050K4 2.5A 250VAC
	Fan motor	Freeze compartment	240V 6.5W

4. FUNCTIONAL & OPERATIONAL INSTRUCTIONS

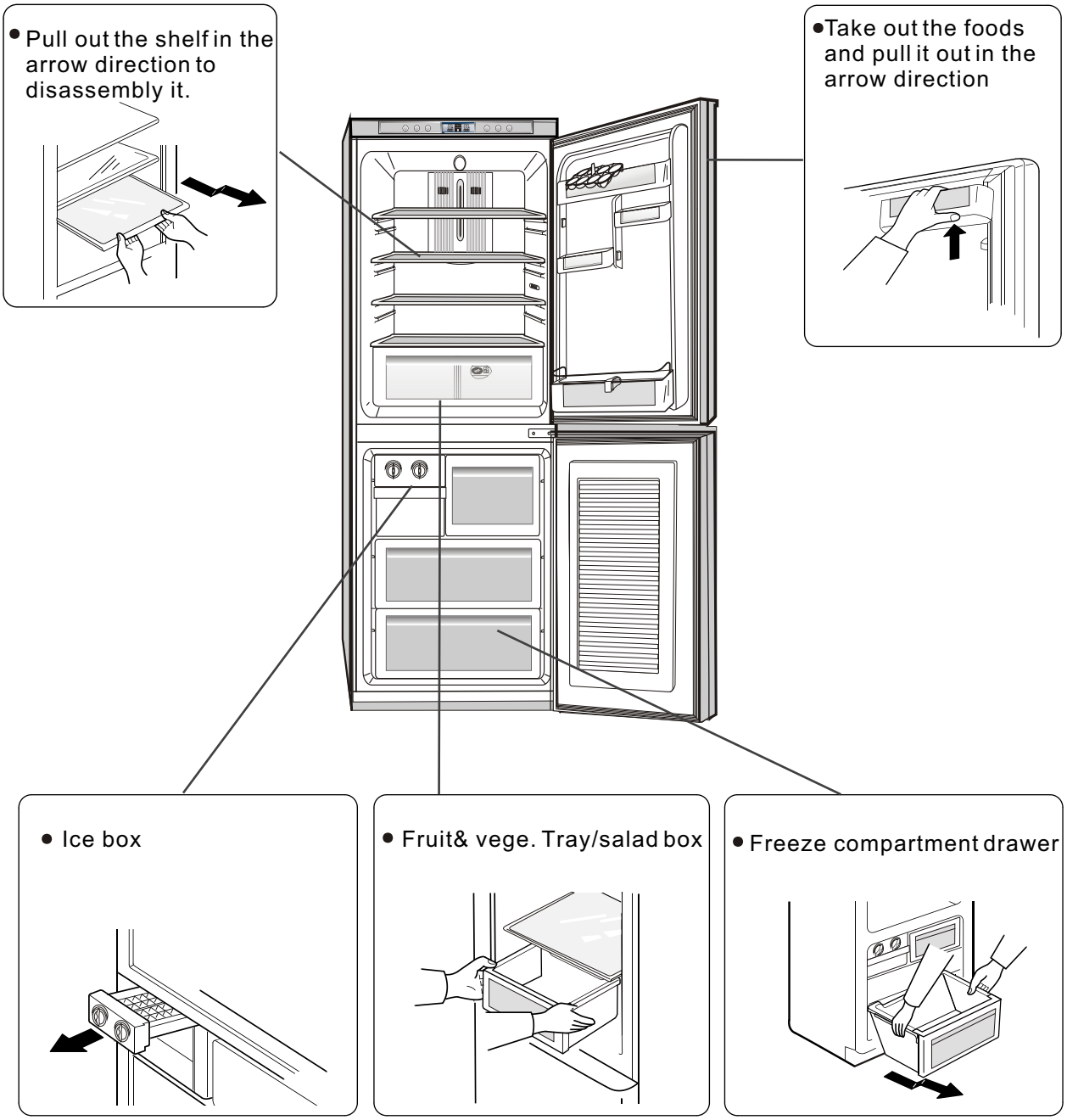
4-1 Product size



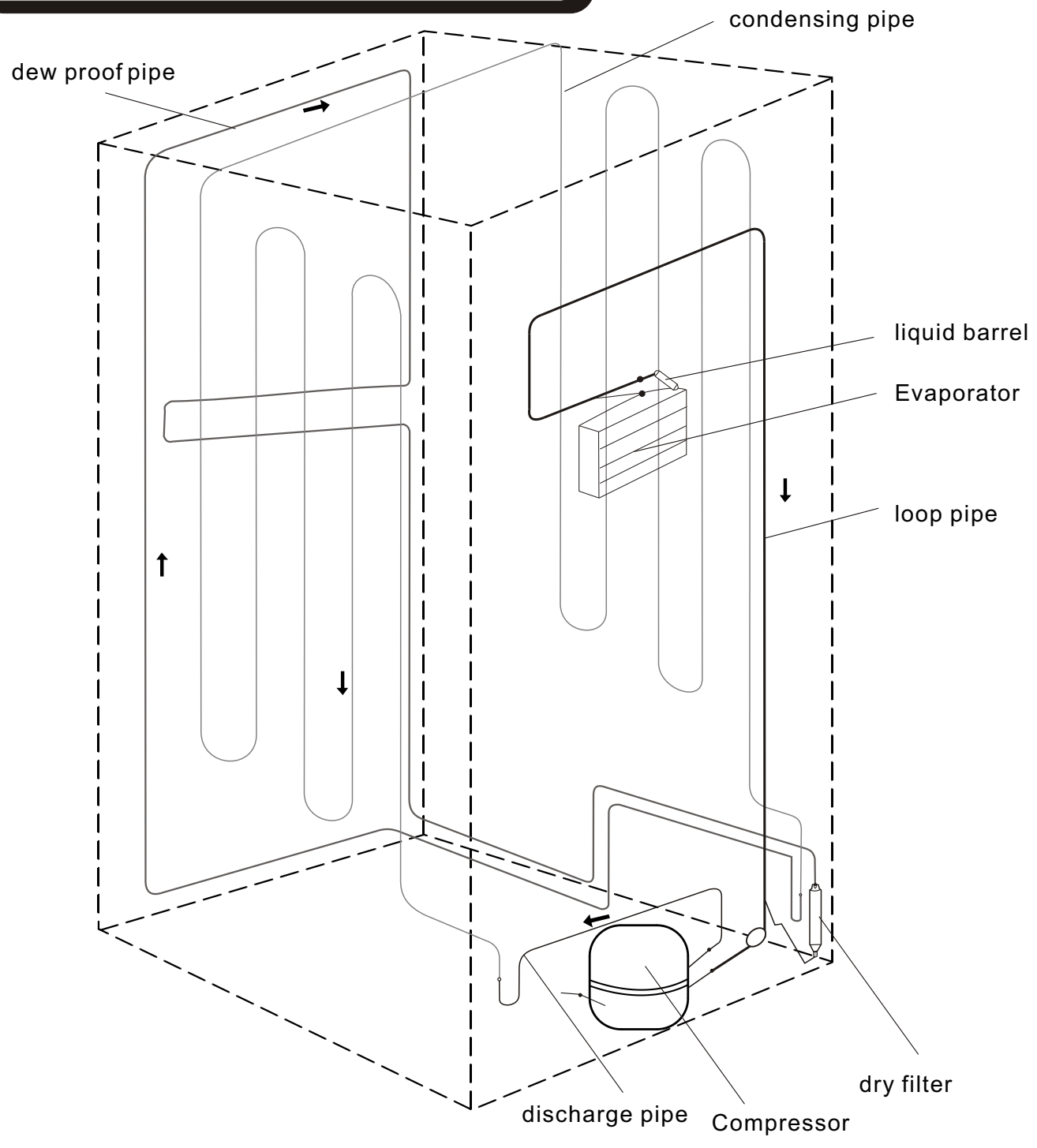
Unit:mm

Code / Model	A	B	C	D	E	F	G	H	I	J	K
RL33****	595	764.5	9	900	42.5	1768	646	1725	43	38.2	1161

4-2 Part Discription & Disassembly

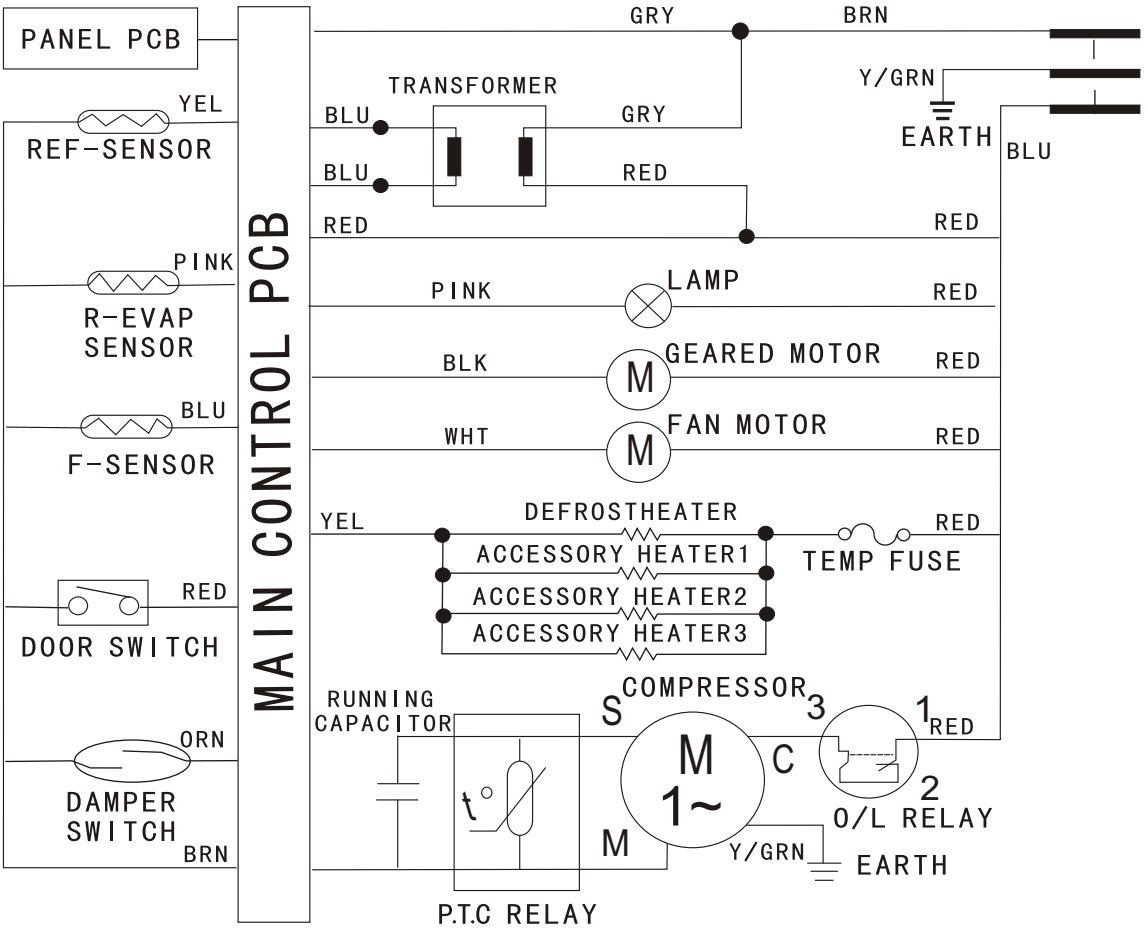

● Pull out the shelf in the arrow direction to disassembly it.
●Take out the foods and pull it out in the arrow direction
● Ice box
● Fruit& vege. Tray/salad box
● Freeze compartment drawer

4-3Cooling System Cycle Diagram

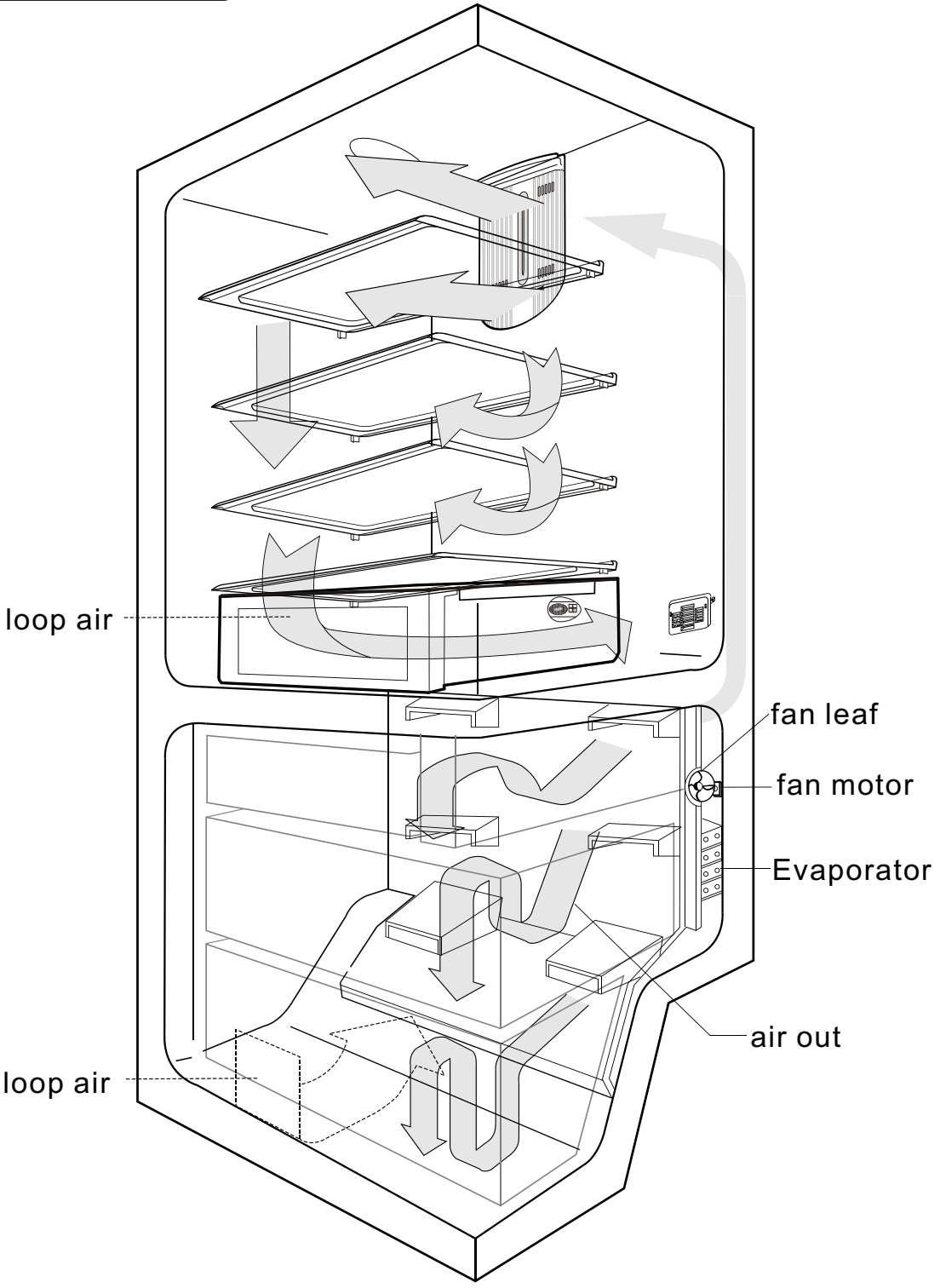


○ 25% silver welding rod soldering
● 2% silver welding rod soldering

4-4Circuit Diagram



4-5 Cold Air Cycle



5. FUNCTIONS

5-1 Display

Part		Functions
Initializing		Display the actual temparature. It will display the default temperature when the refrigerating temperature falls into the setting range (**+5,-3**) and when the freeze temperature falls into the setting range (**+3,-3**).
General run	Refrigeraing	When the actual temperature is within the setting range (**+5,-3**), it will display the default temperature. If the actual temperature exceeds the setting vaule of **+3**, it will display the setting with flashes. if the actural temperature is less than the setting value of **-3**, it will display the actual temperature
	Freeze	When the actual temperature is within the setting range (**+3,-3**), it will display the default temperature. If the actual temperature exceeds the setting vaule of **+3**, it will display the setting with flashes. If the actual temparature reaches the setting value of **-4**, it will display the actual temperature **-1**. if the actural temperature is less than the setting value of **-5**, it will display the actual temperature **-2**.
Defrost (forecooling+ heating+ time-delay)	Refrigeraing	During the defrost forecooling, when the actual temperature is within the setting range (**+5,-3**), lock the current display till the first stop due to compactor defrosting; During the defrost heating, lock the current display till the first stop due to compactor defrosting;
	Freeze	During the defrost forecooling, when the actual temperature is within the setting range (**+3,-3**), lock the current display till the first stop due to compactor defrosting; During the defrost heating, lock the current display till the first stop due to compactor defrosting;
Fast refrigeration Fast freeze		If the actual temperature is less than the setting of **-3**, it will display the actual temperature;
Forced Startup		Display **FF** (Forced Startup)
Forced Defrost		Display **Fd** (Forced Defrost)

5-2 Constant Temperature Control

A.Freeze Temperature Control

1) You may control the freeze temperature by setting the freeze temerature from -15℃ to -23℃ at 1℃ interval.
2) Whenever you press the temperature control key, the temperature will display in the following sequence: -18℃,-19℃,-20℃,-21℃,-22℃,-23℃,-15℃,-16℃,-17℃,-18℃.
3) The freeze temperature is initialized as -18℃.

B.Refrigerating Temperature Control

1) You may control the refrigerating temperature from 9℃ to 1℃ by pressing refrigerating temerature key at 1℃ interval.
2) If pressing the temperature control button, the temperature will display in the following sequence: 5℃,4℃,3℃,2℃,1℃,9℃,8℃,7℃,6℃,5℃.
3) The refrigerating temperature is initialized as 5℃.

Step	Power on	1st press	2nd press	3rd press	4thpress	5thpress	6th press	7th press	8th press	9thpress	10thpress
Display	→	5℃	4℃	3℃	2℃	1℃	9℃	8℃	7℃	6℃	5℃
Freeze temp. Control		5℃	4℃	3℃	2℃	1℃	9℃	8℃	7℃	6℃	5℃

C.Fast refrigeration

1) Press the **Fast refrigeration** key, the fast refrigeration light is on, leaving the gear air door open.
2) The state will display in the following cycle: fast refrigeration light on→fast refrigeration light off→ fast refrigeration light on. It will change with a press of the **Fast refrigeration** key.

Step	Power on	1st press	2nd press	Comments
Display	**Fast refrigeration** light off	**Fast refrigeration** light on	**Fast refrigeration** light off	

3) If you select **Refrigeration Off**, Fast Refrigeration will end up abruptly with a new start of Refrigeration Off.
4) If you select Fast refrigeration, the air door will be open until the end of fast refrigeration after 1.5 hours or the end by manual. The air door Open and Stop will be determined by the refrigerating temperature.

D.Fast Freeze

1) Press the **Fast Freeze** key to activate the fast freeze light and run the compactor and fan motor.
2) The state will display in the following cycle: fast freeze light on→fast freeze light off→fast freeze light on. It will change with the a press of the **Fast freeze** key.

Step	Power on	1st press	2nd press	Comments
Display	fast freeze light off	fast freeze light on	fast freeze light off	

3) If you select **Fast Freeze**, the compactor and fan will keep running up to 2 hours (start within 10 mins after selection).
4) If the temperature meets the defrost condition during the operation of fast freeze, the fast freeze defrost period will be prolonged to the end of fast freeze and the access to the defrost state.

E.Standard Run

1) You may press the function key to select or give up this funciton.
2) If you select the Standard Run function, the freeze and refrigerating temperatures will be controlled at -18℃ and 5℃ respectively.

F. Refrigeration Off

1) You may press the function key to select or give up this funciton.
2) If you select Refrigeration Off function , the gear air door will be closed and the refrigerating temperature levels with the room temperature.

5-3 Defrost

A.General Function

1) Defrost consists of 3 sections: forecooling, heating, time-delay;
2) When the following conditions are met, the defrost period is set as 19 hours: the refrigerating compartment door opening and closing opportunity is less than once; the refrigerating temperature is under the setting of +6℃ and the freeze temperature is under the setting of +4℃; No special functions are selected (Refrigeration Off, Fast refrigeration, Fast Freeze). The defrost period become 6 hours under other conditions except the above.
3) When the appliance is initialized, the first defrost period is 4 hours.
4) The compactor and fan will stop during defrosting, the air door will be closed during heating, and the air door will keep running during time-delay.
5) Prior to defrosting, the compactor will keep running for 50 mins for forecooling.
6) Heating is controlled by the evaporator's sensor. If the sensor breaks down or the evaporator temperature exceeds -5℃, heating fails to work and step into the next around.
7) The delayed time is 7 minutes.

B.Defrost During Fast Refrigeration

1) The defrost operation will be delayed during the fast refrigeration run until the end of the fast freeze.
2) If the fast refrigeration function is cancelled by prior manual operation, the defrost function will start up. The compactor running time during the fast freeze will be added to the total work time
3) If the Fast Freeze function is selected during the defrost operation, the fast freeze light will be on. But the actual running will not begin until the end of the defrosting.

C.Heater ON/OFF During Defrosting

1) Defrost Heater ON Temperature

General Defrost	Forced Defrost	Comments
Lower than -5℃	Lower than -5℃	Remains same under all defrosting condition

2)Defrost Heater OFF Temperature

Difference	6 hours	19 hours	4 hours	Comments
OFF	12℃	12℃	12℃	

5-4 Test Function

- Test function is to check the product, PCB, process control and maintenance.
- After the product function determined by selecting the test switch, you must re-electrify the appliance to run the self-diagonisis function.

A.Forced Function

1) If you press the Refrigerating Temperature key and the Freeze Temperature key up to 5 minutes at the same time, the compactor will start running with the display board highlighting **FF** .
2) If the Forced Function is selected, the compactor will start running without 5 minutes' time delay. Defrost operation will stop if the appliance is at the state of defrosting.
3) If the forced function is selected, the compactor will keep running for 24 hours. But the refrigerating temperature may be adjusted by pressing the Refrigerating Temperature key.

B.Forced Defrost

1) If you press the Refrigerating Temperature key and the Freeze Temperature key up to 5 minutes simutaneously at forced startup state, the compactor will stop running and step into the forced defrost state with the display board highlighting **Fd** .
2) If the evaporator sensor's temperature is higher than -5℃ under the forced defrost state, the heater will fail to work and the compactor will resumes after the end of time-delay.

C. Test Quitting

1) If you press the Refrigerating Temperature key and the Freeze Temperature key up to 5 minutes at the same time under forced defrost state, the forced defrost function will come to a sudden end. The refrigerator will reset and **Fd** disappear.

5-5 Other Controlling Functions

A.Compactor Protective Function

1) Restart is not allowed within 5 minutes after the stop of the compactor.
2) For forced startup, the compactor may start working without 5 minutes' time-delay by pressing the Forced Startup button.
3) When electrifying or switching on the power, this function will start working after 3 minutes' defrost heating.
4) When opening the refrigerating door, the fan motor will stop running and the air door is closed.

5-6 Opening Alarm and Refrigerating Compartment Illuminating Control

A.Opening Alarm and Illuminator

1) Opening of the refrigerating door for 2 minutes will incur Buzzer (Ding).
2) The alarm will stop with light off after 2 minutes
3) If the door is closed, the alerm will stop at once.

5-7 Self-diagnosis

A. Self-diagnosis

1) The temperature sensor is considered malfunctional if its temperature go beyond -50℃ ~ +85℃. If the core chip input voltage exceeds 0.5V~4.5V, it will be deemed as short circuit or open circuit.

◆ Self-diagnosis Trouble Sheet

NO	ITEM	DISPLAY	TROUBLE	COMMENTS
1	Refrigerating sensor	"r5"	Open circuit short circuit	Test temp. lower than -50℃ Test temp. higher than +85℃
2	Main evaporator sensor	"d5"	Open circuit short circuit	Test temp. lower than -50℃ Test temp. higher than +85℃
3	Freeze sensor	"F5"	Open circuit short circuit	Test temp. lower than -50℃ Test temp. higher than +85℃
4	External sensor	"E5"	Open circuit short circuit	Test temp. lower than -50℃ Test temp. higher than +85℃
5	Magnetic switch	"rd"	Air door relay failure, or motor, air door magnetic spring switch or magnet trouble	Magnetic spring switch ON/OFF is unable to be detected after 1 minute's run

B.Initializing Self-diagnosis

1) The core chip will self-inspect the temperature sensor within 1 minute after power on.
2) Malfunctional sensors found by the self-diagnosis will be reflected on the display at 0.5S interval.
3) If bad sensors are detected, no press will be admitted. All electric loads will be set to the position of OFF and the regular temperature control will be retained.
4) If the broken down sensors are repaired, the appliance will be reset to the original state.

C.Self-diagnosis During Normal Operation

1) If pressing the Fast Refrigeration key and the Function Selection key for 5 minutes simutaneously during normal run, the appliance will select the self-diagnosis function with EC shown on the display.
2) During the Self-diagnosis, key press does not work.

5-8 Buzzer

A.Key Press

1) If you press the key under normal work condition , each press will trigger a sound of Ding Dong
2) If you keep pressing the key, only Ding is heard.
3) Fault operation will bring about no sound.

B.Door Opening Alarm

1) Opening of the regrigerating door for 2 minutes will incur Didi alarm.

C.Forced Function

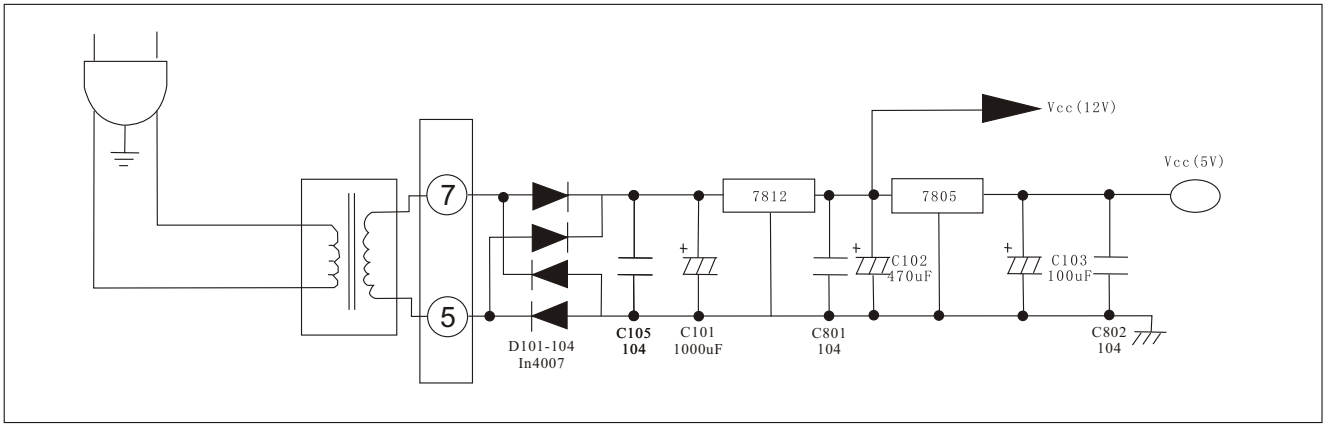
1) Simutaneous press of the Refrigerating Temperature key and the Freeze Temperature button for 5 minutes will trigger Dudu sound at 0.5S interval.

D.Forced Defrost

1) Only simutaneous press of the Refrigerating Temperature key and the Freeze Temperature button for 5 minutes under forced defrost state will trigger Dudu sound at 0.5S interval.

6. CIRCUIT DETAILS

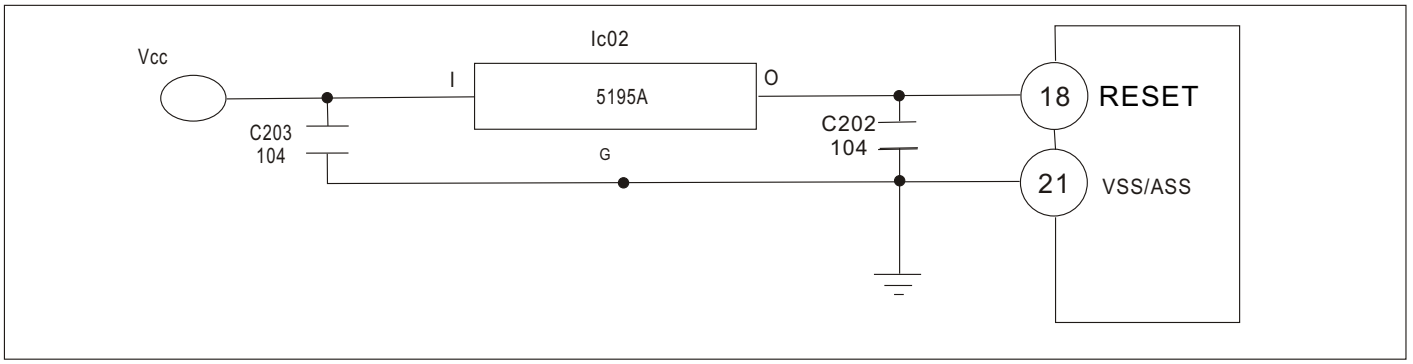
6-1 Power Supply Part



Power supply	Applied circuit
Vcc (DC 5V)	Chip peripheral circuit and sensor
Vcc (DC 12V)	Control voltage of the display and relay

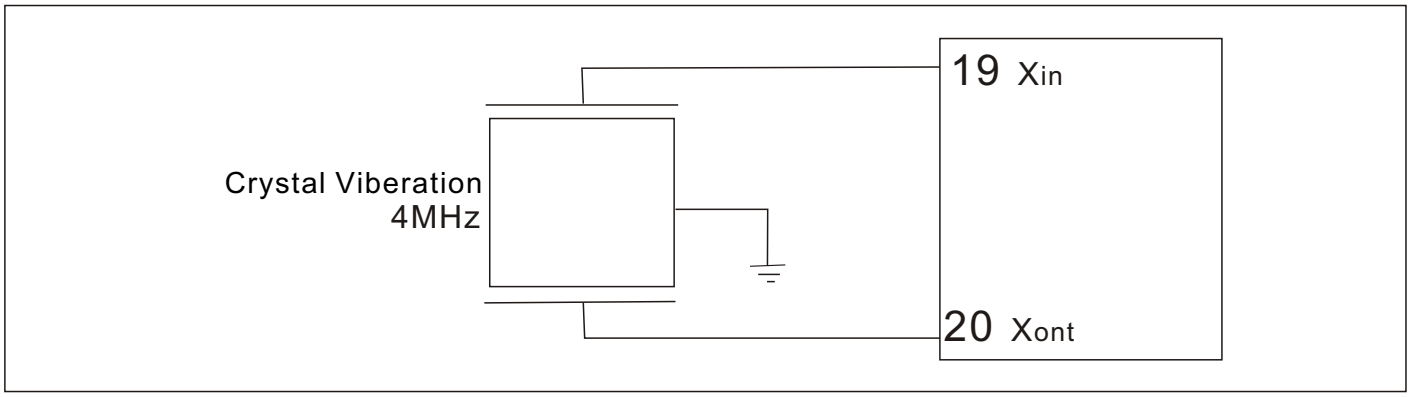
◆ The AC input voltage will be stepped down by the transformer and be converted into the DC voltage by the rectifying circuit (D101-104). The 1000F/35V wave filter capacitor will be used to filter out the residue AC voltage and the manostat 7812 is used to output the steady 12V DC voltage that will be used as the control voltage of the relay and display. The 12V DC voltage will be regulated by the manostat 7805 to output the steady 5V voltage, which will be used as the output voltage of the chip peripheral circuit and various signals (sensor, switch) .

6-2 Reset Circuit Part



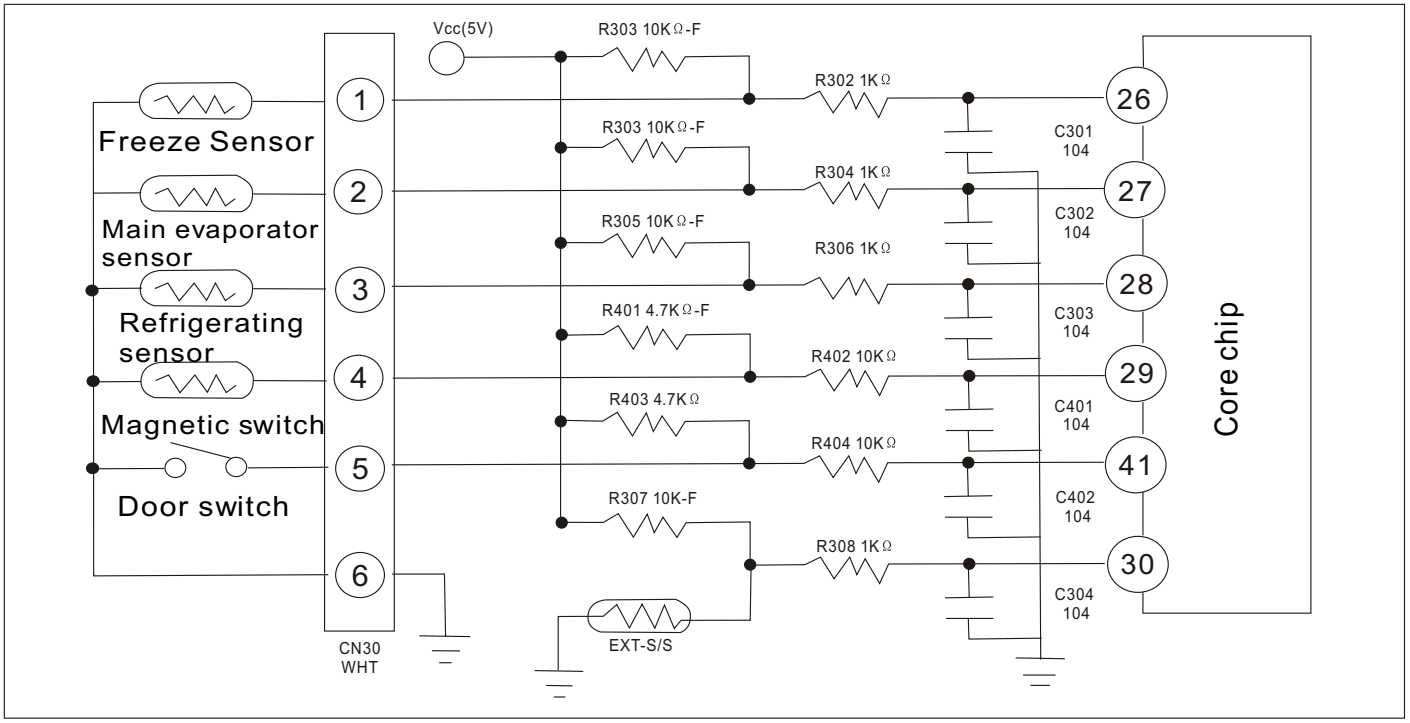
◆ The reset circuit part enables the system program to return the system that meets power trouble or abrupt power-off to the initial state by the memory of the core chip. At the very beginning of the power-on, the reset chip voltage is LV, and becomes HV after normal operation.

6-3 Crystal Viberation Part



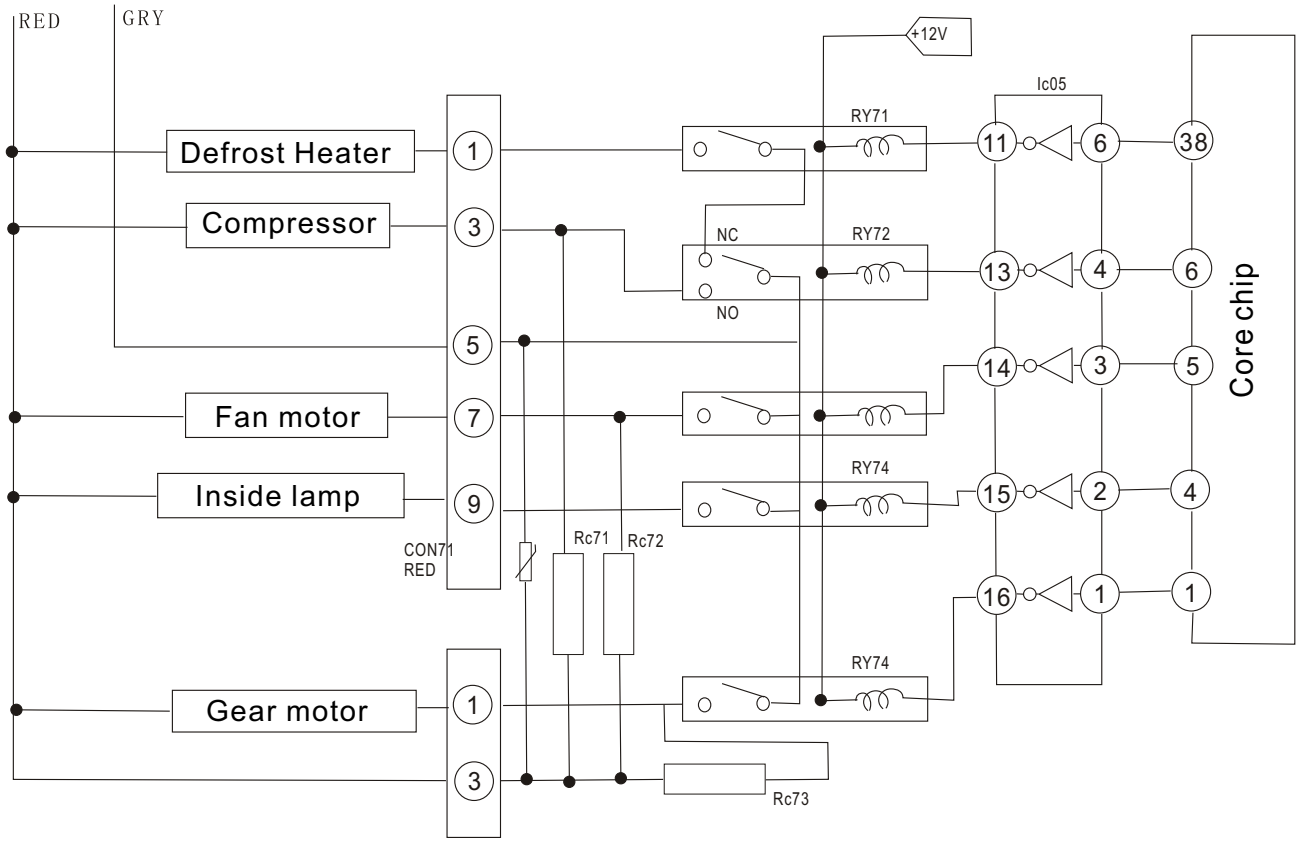
◆ This circuit is used for the geneation of the resonant clock by receiving and sending the logic element information within the core chip. The time on the clock will play the role of time base. The resonance circuit must apply the rated criteria of each element as specification deviation will change the core chip time and disable the running.

6-4 Sensor Part



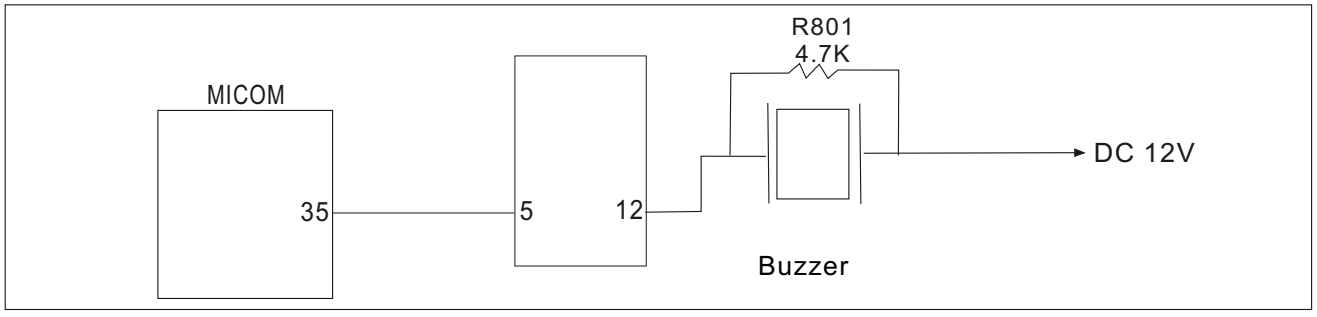
◆ The sensor and the resistance in F precision are respectively connected to Earthing and DC5V. The resistance value that varies with the temperature are converted into the corresponding voltage. Test the voltage at the A/D transition interface of the core chip to determine the temperature.

6-5 Operation Part



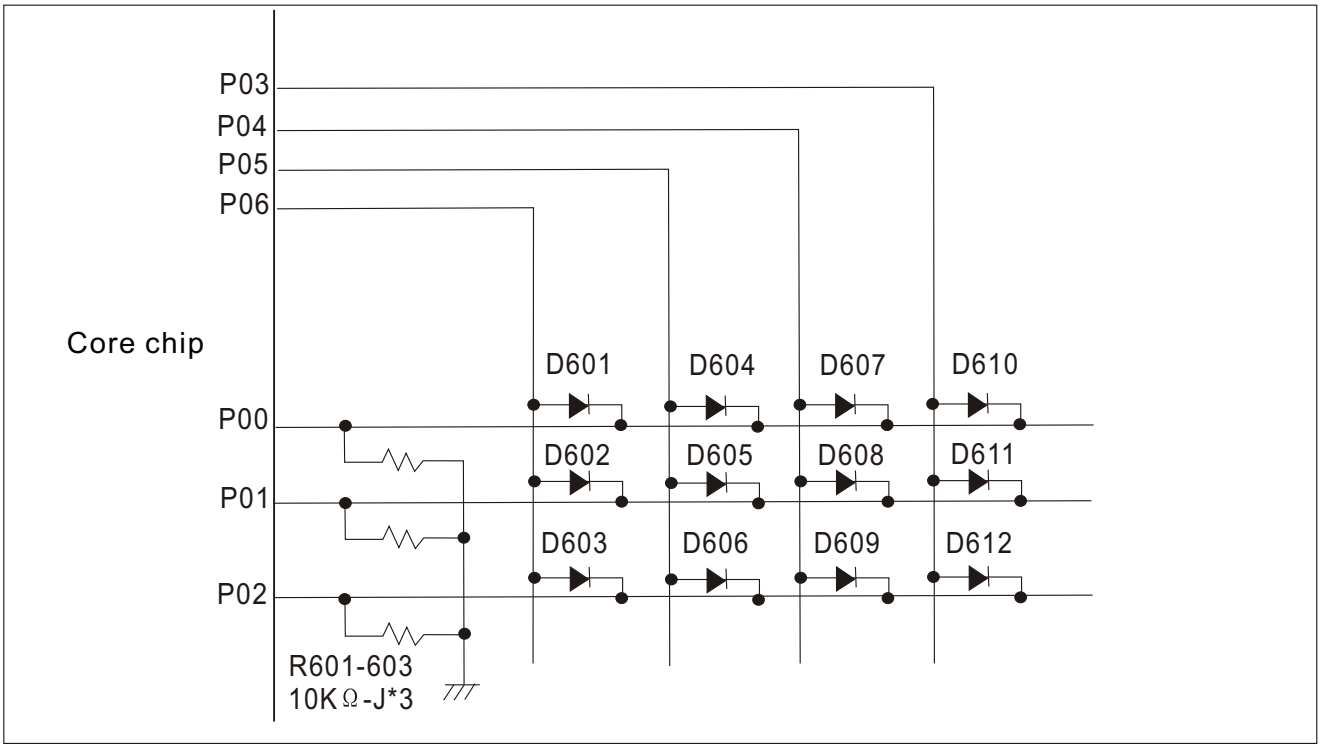
◆ If outputing the relevant work circuit signals into the core chip port, the driving chip (ULN2003) will be activated. The DC 12V voltage will set the relay terminals to the position of On due to relay coils reaction to activate the circuit.

6-6 Buzzer Part



◆ The driving chip is initiated by the core chip generated CLOCK and impose the 12V volgtage on the buzzer to make it voice a sound.

6-7 Functions



◆ The output signals such as GRID waves after initializing will be received by the diode and function confirmed by the metrix. The #32,#24 and #25 interfaces of the core chip only generate the same GRID waves output at the initializing stage.

◆Freeze Temperature Shift (unit: ℃)

SHIFT	6	5	4
Default	0	0	0
-1.0℃	0	0	1
-2.0℃	0	1	0
-3.0℃	0	1	1
+1.0℃	1	0	0
+2.0℃	1	0	1
+3.0℃	1	1	0
+4.0℃	1	1	1

◆Refrigerating Temperature Shift (unit: ℃)

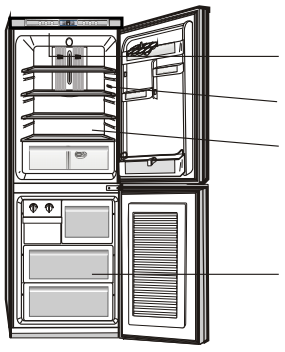
SHIFT	3	2	1
Default	0	0	0
-1.0℃	0	0	1
-2.0℃	0	1	0
-3.0℃	0	1	1
+1.0℃	1	0	0
+2.0℃	1	0	1
+3.0℃	1	1	0
+4.0℃	1	1	1

7. TROUBLE DIAGNOSIS & REPAIR SOLUTIONS

Mainboard inspection method

●At the self-diagnosis stage, you must cut off and reconnect to the power for inspection.
●The self-diagnosis codes are listed below
※self-diagnosis codes:

NO	ITEM	DISPLAY	TROUBLE	COMMENTS
1	Refrigerating sensor	"r5"	Open circuit short circuit	Test temp. lower than -50℃ Test temp. higher than +85℃
2	Main evaporator sensor	"d5"	Open circuit short circuit	Test temp. lower than -50℃ Test temp. higher than +85℃
3	Freeze sensor	"F5"	Open circuit short circuit	Test temp. lower than -50℃ Test temp. higher than +85℃
4	External sensor	"E5"	Open circuit short circuit	Test temp. lower than -50℃ Test temp. higher than +85℃
5	Magnetic switch	"rd"	Air door relay failure, or motor, air door magnetic spring switch or magnet trouble	Magnetic spring switch ON/OFF is unable to be detected after 1 minute's run



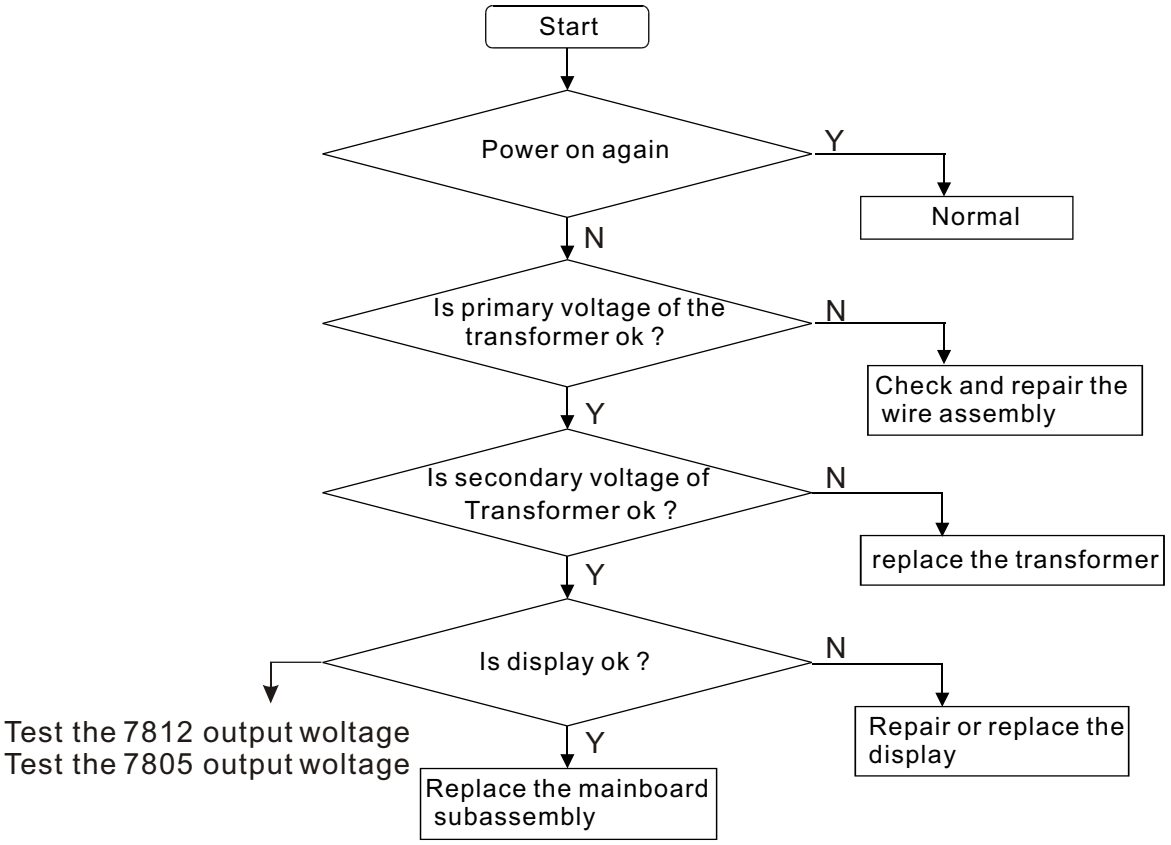
※Sensor resistance and core chip voltage and temp.

Temp	Resistance	Voltage	Temp	Resistance	Voltage
-35	68150	4.360	-15	25650	3.597
-34	64710	4.331	-14	24510	3.551
-33	61480	4.301	-13	23420	3.504
-32	58430	4.269	-12	22390	3.456
-31	55550	4.237	-11	21410	3.408
-30	52840	4.204	-10	20408	3.360
-29	50230	4.170	-9	19580	3.310
-28	47770	4.134	-8	18730	3.260
-27	45450	4.098	-7	17920	3.209
-26	43260	4.061	-6	17160	3.159
-25	41190	4.023	-5	16430	3.108
-24	39240	3.985	-4	15740	3.057
-23	37390	3.945	-3	15080	3.006
-22	35650	3.905	-2	14450	2.955
-21	33990	3.863	-1	13860	2.904
-20	32430	3.822	0	13290	2.853
-19	30920	3.778	1	12740	2.801
-18	29500	3.734	2	12220	2.750
-17	28140	3.689	3	11720	2.698
-16	26870	3.644	4	11250	2.647

Temp	Resistance	Voltage	Temp	Resistance	Voltage
5	10800	2.596	25	5000	1.667
6	10370	2.545	26	4821	1.626
7	9959	2.495	27	4650	1.587
8	9569	2.445	28	4487	1.549
9	9195	2.395	29	4329	1.511
10	9839	2.346	30	4179	1.474
11	8494	2.296	31	4033	1.437
12	8166	2.248	32	3894	1.401
13	7852	2.199	33	3760	1.366
14	7552	2.151	34	3631	1.332
15	7266	2.104	35	3508	1.298
16	6992	2.057	36	3390	1.266
17	6731	2.012	37	3276	1.234
18	6481	1.966	38	3167	1.203
19	6242	1.922	39	3026	1.172
20	6013	1.873	40	2962	1.143
21	5792	1.834	41	2864	1.113
22	5581	1.791	42	2770	1.085
23	8379	1.749	43	2680	1.057
24	5185	1.707	44	2593	1.030

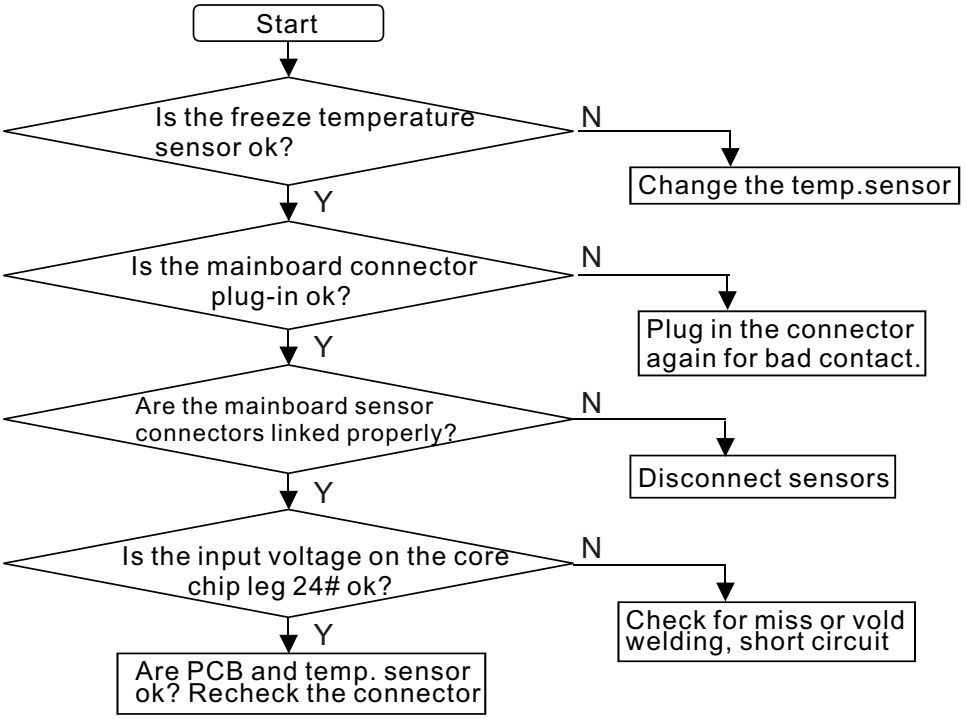
Primary Inspection

1. Prior to trouble settlement, check if the power socket is electrified and the connecting power supply spec. is normal.
2. Check if the power botton on display is pressed or not.
3. If other troubles are found, please refer to the remarks on the next page to make an inspection.

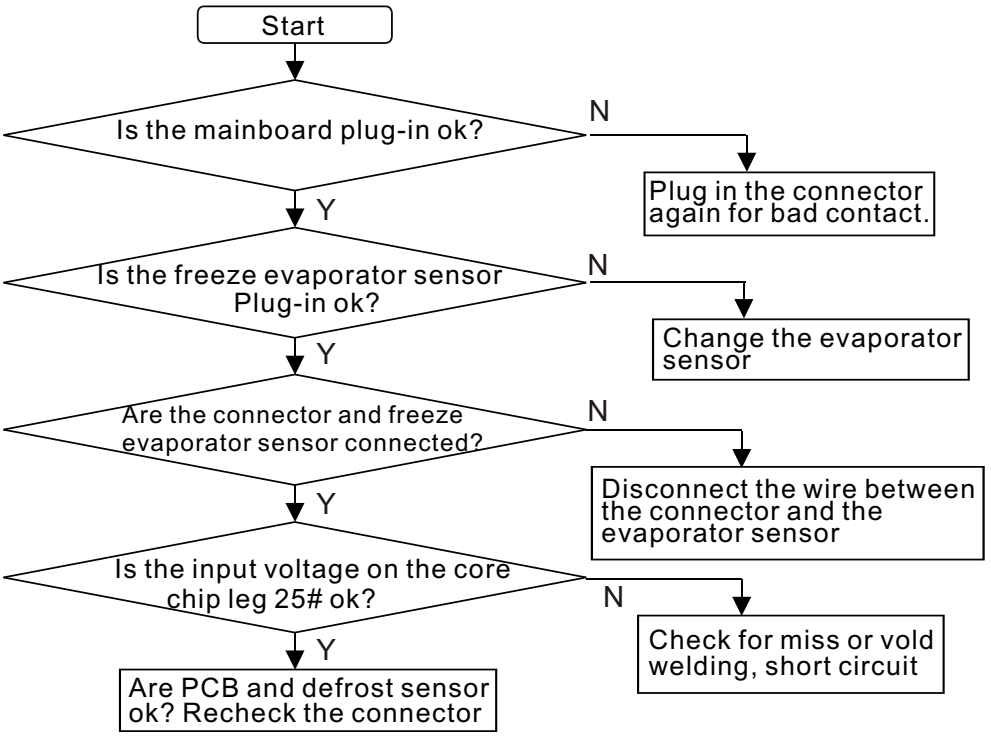


7-2 When troubles are found by self-diagnosis

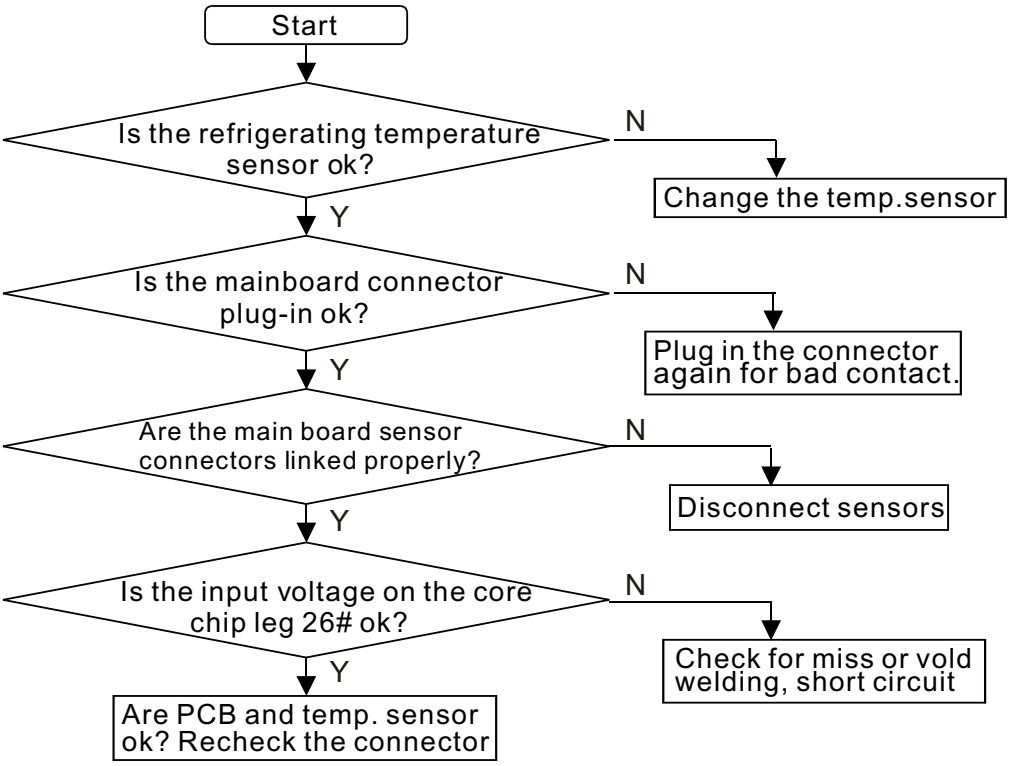
A. When the freeze sensor breaks down



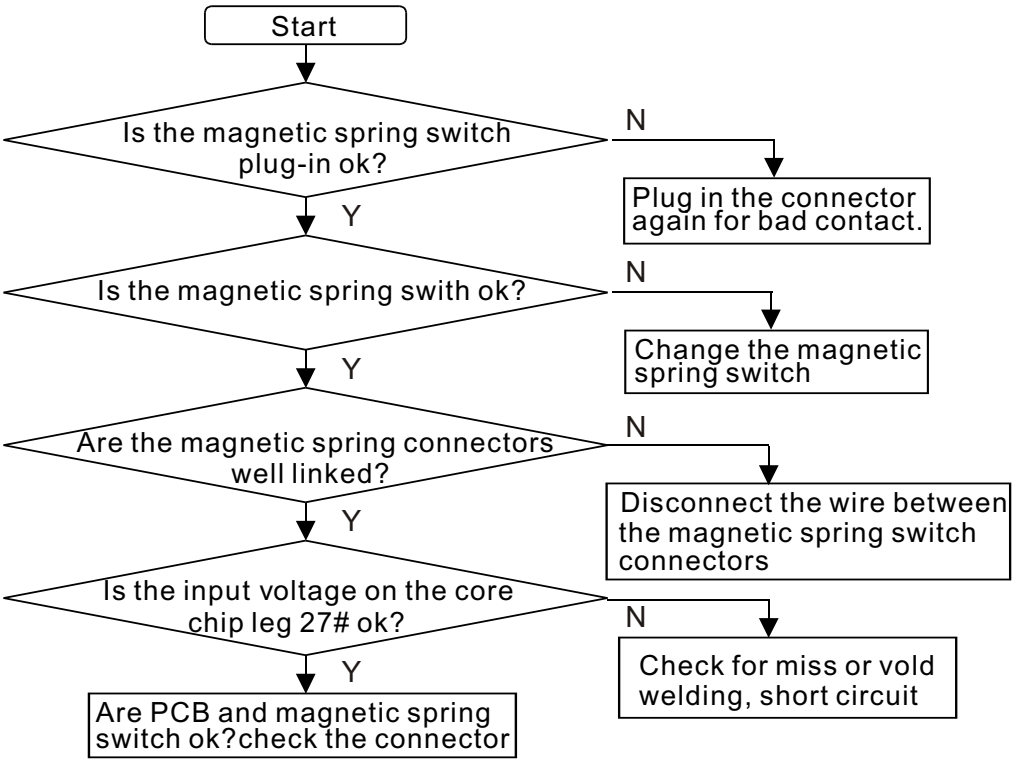
B.When the freeze evaporator sensor breaks down


Start
Is the mainboard plug-in ok?
N
Plug in the connector again for bad contact.
Y
Is the freeze evaporator sensor Plug-in ok?
N
Change the evaporator sensor
Y
Are the connector and freeze evaporator sensor connected?
N
Disconnect the wire between the connector and the evaporator sensor
Y
Is the input voltage on the core chip leg 25# ok?
N
Check for miss or vold welding, short circuit
Y
Are PCB and defrost sensor ok? Recheck the connector

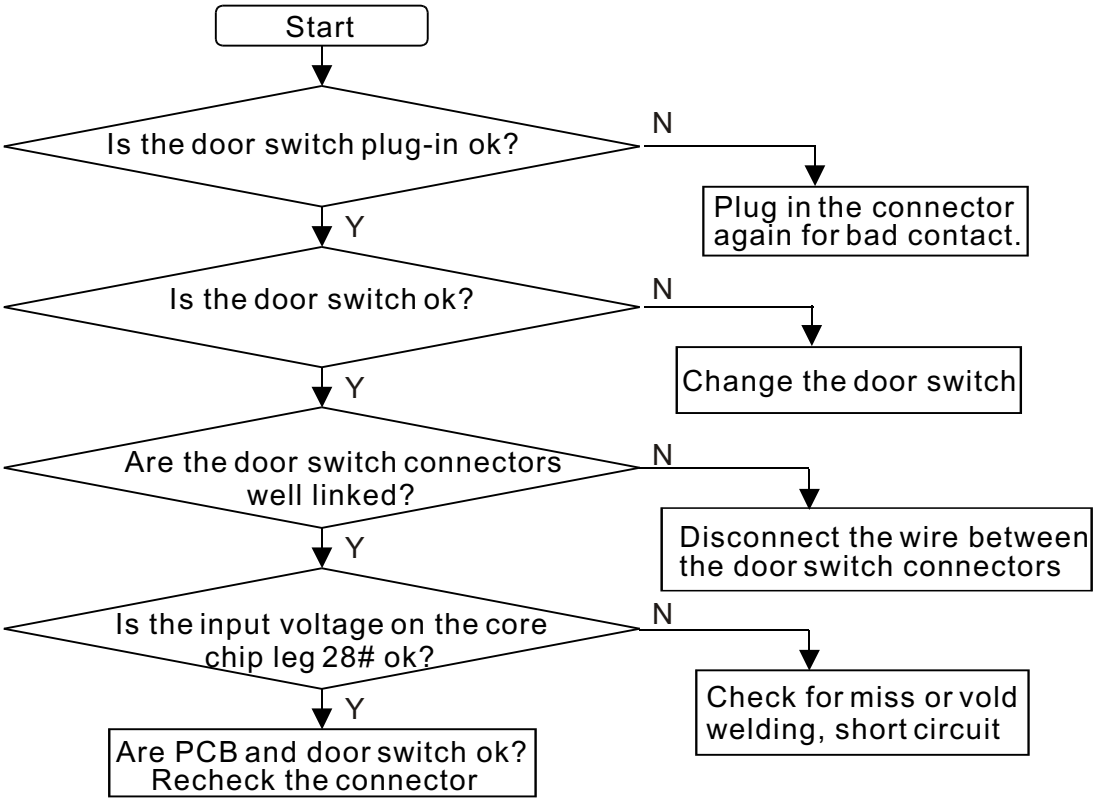
C. When the refrigerating sensor breaks down



D.When the air door magnetic spring switch breaks down

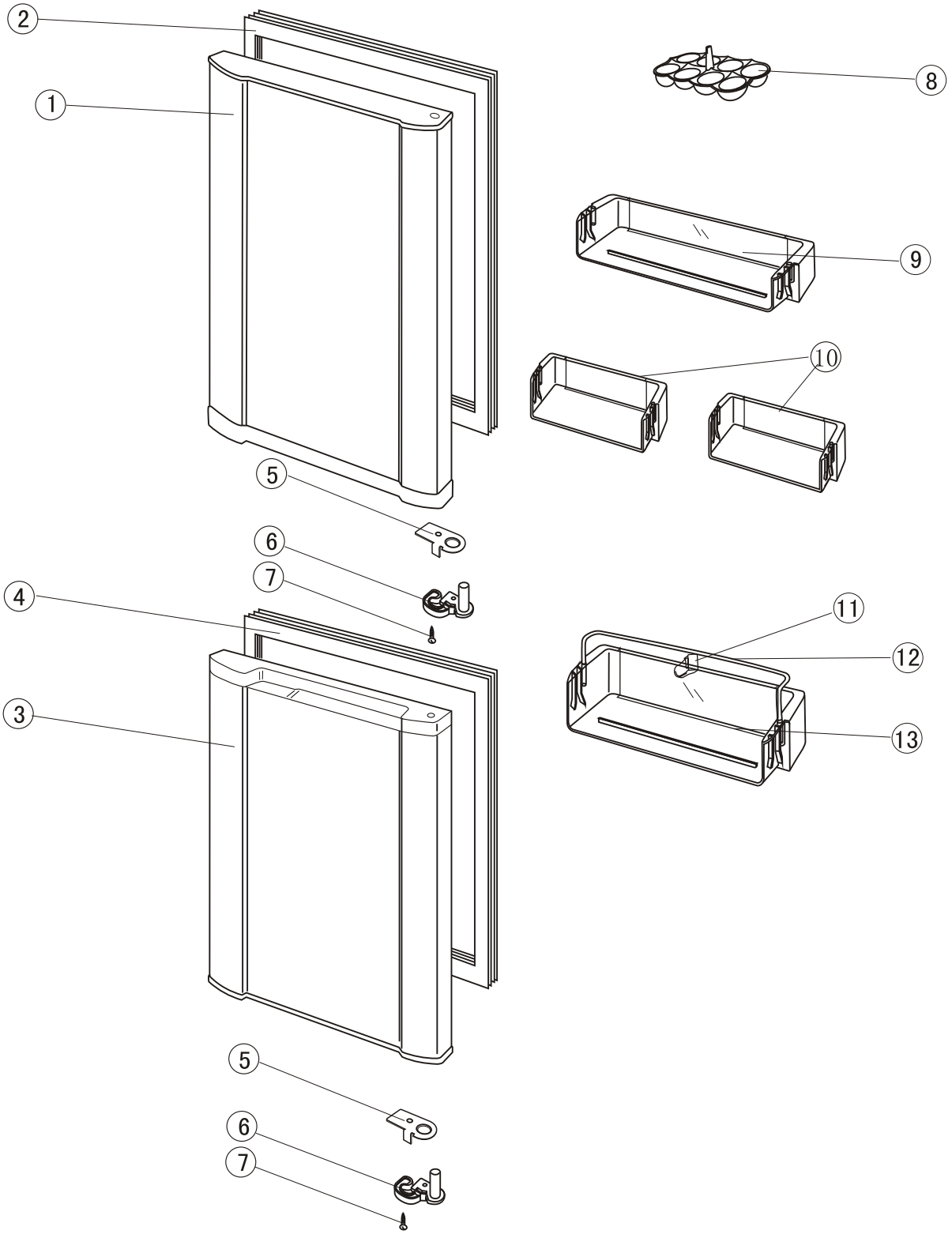

Start
Is the magnetic spring switch plug-in ok?
N
Plug in the connector again for bad contact.
Y
Is the magnetic spring swith ok?
N
Change the magnetic spring switch
Y
Are the magnetic spring connectors well linked?
N
Disconnect the wire between the magnetic spring switch connectors
Y
Is the input voltage on the core chip leg 27# ok?
N
Check for miss or vold welding, short circuit
Y
Are PCB and magnetic spring switch ok?check the connector

E. When the door switch breaks down


Start
Is the door switch plug-in ok?
N
Plug in the connector again for bad contact.
Y
Is the door switch ok?
N
Change the door switch
Y
Are the door switch connectors well linked?
N
Disconnect the wire between the door switch connectors
Y
Is the input voltage on the core chip leg 28# ok?
N
Check for miss or vold welding, short circuit
Y
Are PCB and door switch ok? Recheck the connector

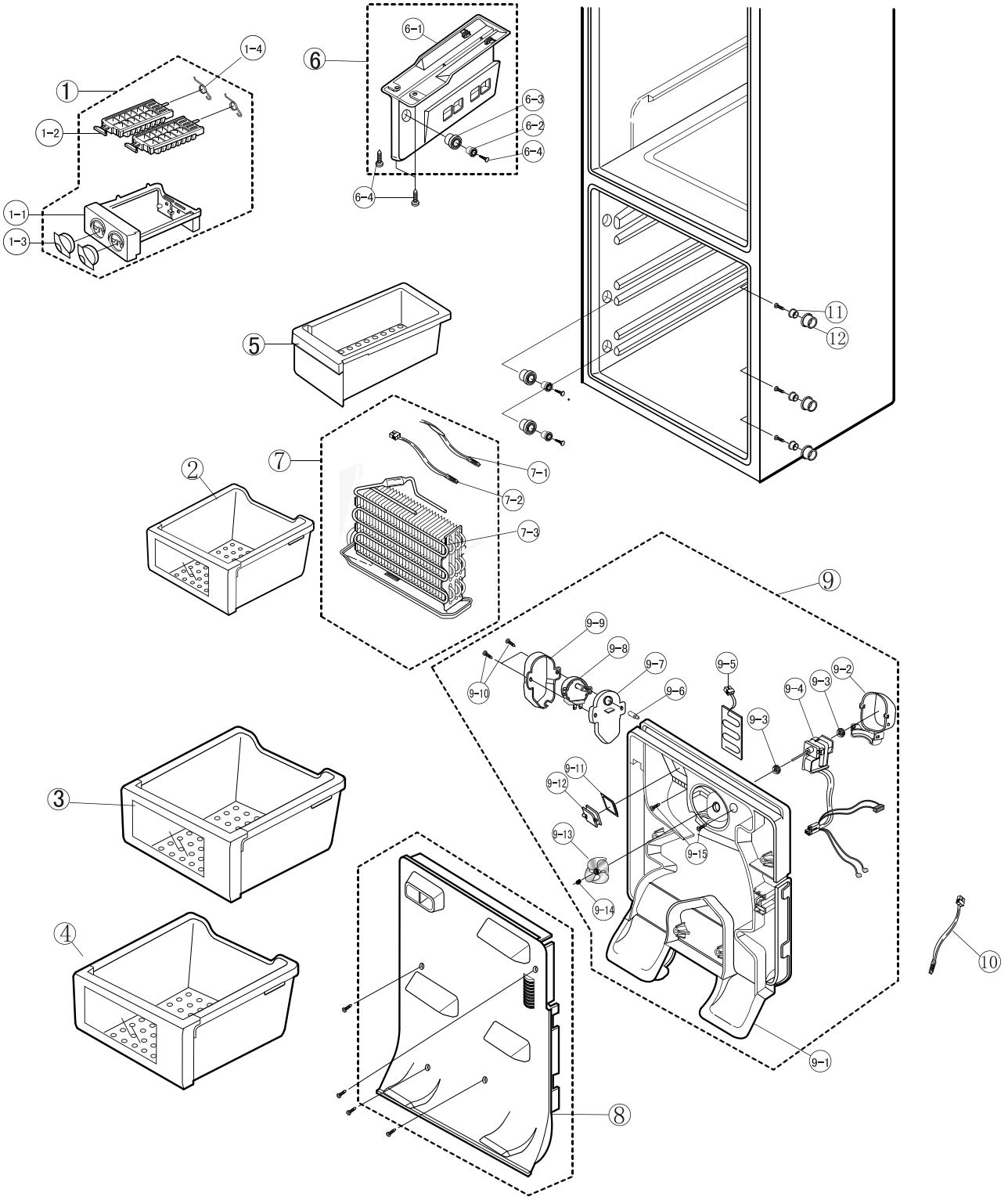
8. PART BREAKDOWN & LIST

8-1 Door



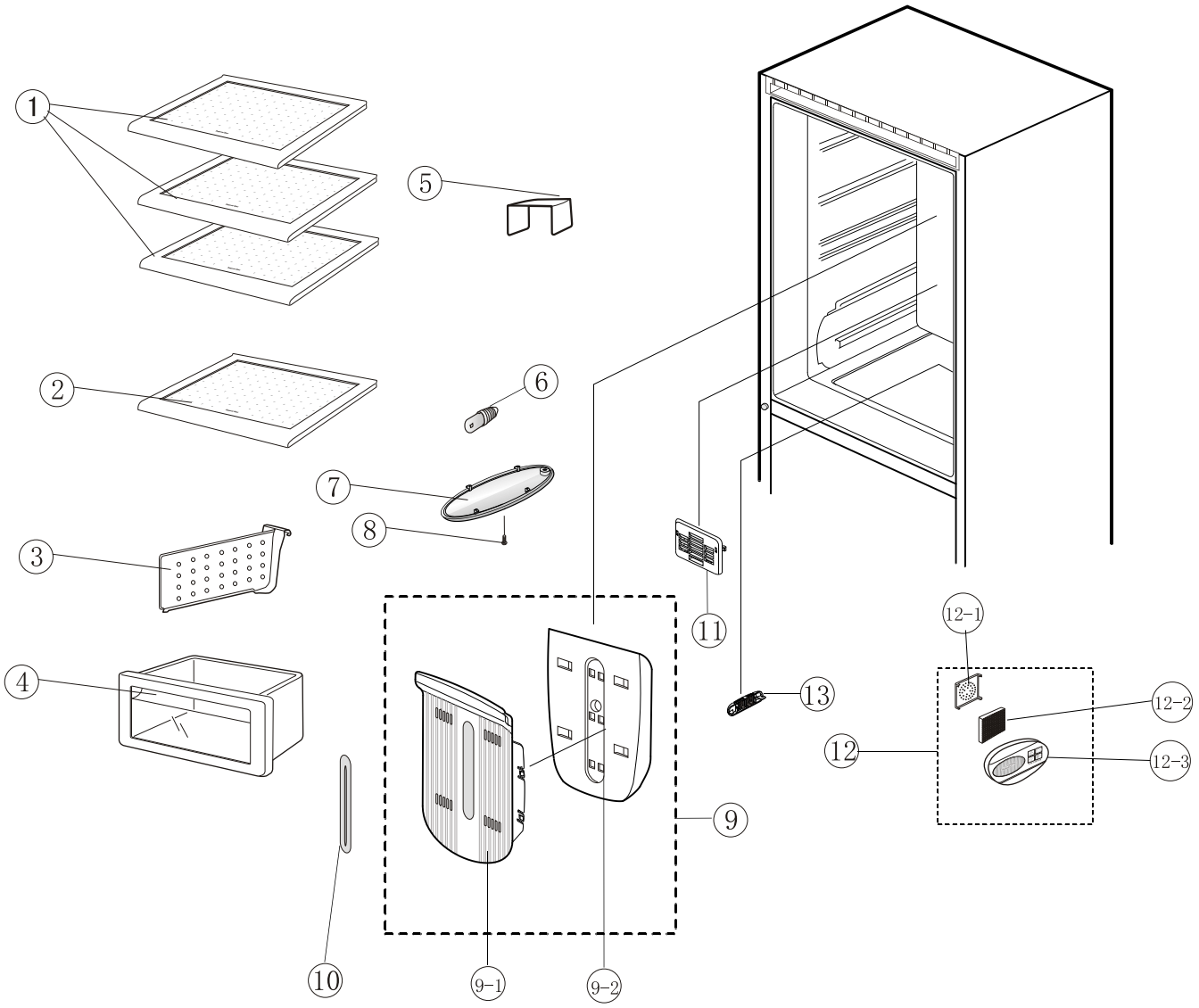
No	Part number	Description	Q'ty	Spec	Remark
1	DA91-01781C	ASSY DOOR FOAM REF	1	RL33EBMS,T-SILVE	
2	DA63-00688L	GASKET DOOR-REF	1	290WN,PVC,4,554,857	
3	DA91-01782C	ASSY DOOR FOAM FRE	1	RL33EBMS,T-SILVE	
4	DA63-00510N	GASKET DOOR-FRE	1	290WN,PVC,4,554,715	
5	DA61-00846B	STOPPER DOOR-A	2	A-PJT(FTN),POM,-,-,-	
6	DA61-00847A	STOPPER DOOR-C	2	BCD-230FBN,STS304,T2	
7	6002-001111	SCREW-TAPPING	2	TH,+,SJ2823-87,M3.5,L	
8	DA66-00115D	TRAY EGG	1	231WN,PP,-,-,-,-,F01D07H8,	
9	DA97-00784D	ASSY GUARD EGG	1	BCD-290WGBN,ANTI-BAC	
10	DA97-00786D	ASSY GUARD VARITY	2	BCD-290WGBN,ANTI-	
11	DA61-00848A	GUIDE BOTTLE	1	BCD-230FBN,PP,-,-,-,-,	
12	DA63-01488A	GUARD	1	A-PJT,Q215,OD5,-,-,L425.9,-,-	
13	DA97-00785D	ASSY GUARD BOTTLE	1	BCD-290WGBN,ANTI-	

8-2 Freeze Compartment



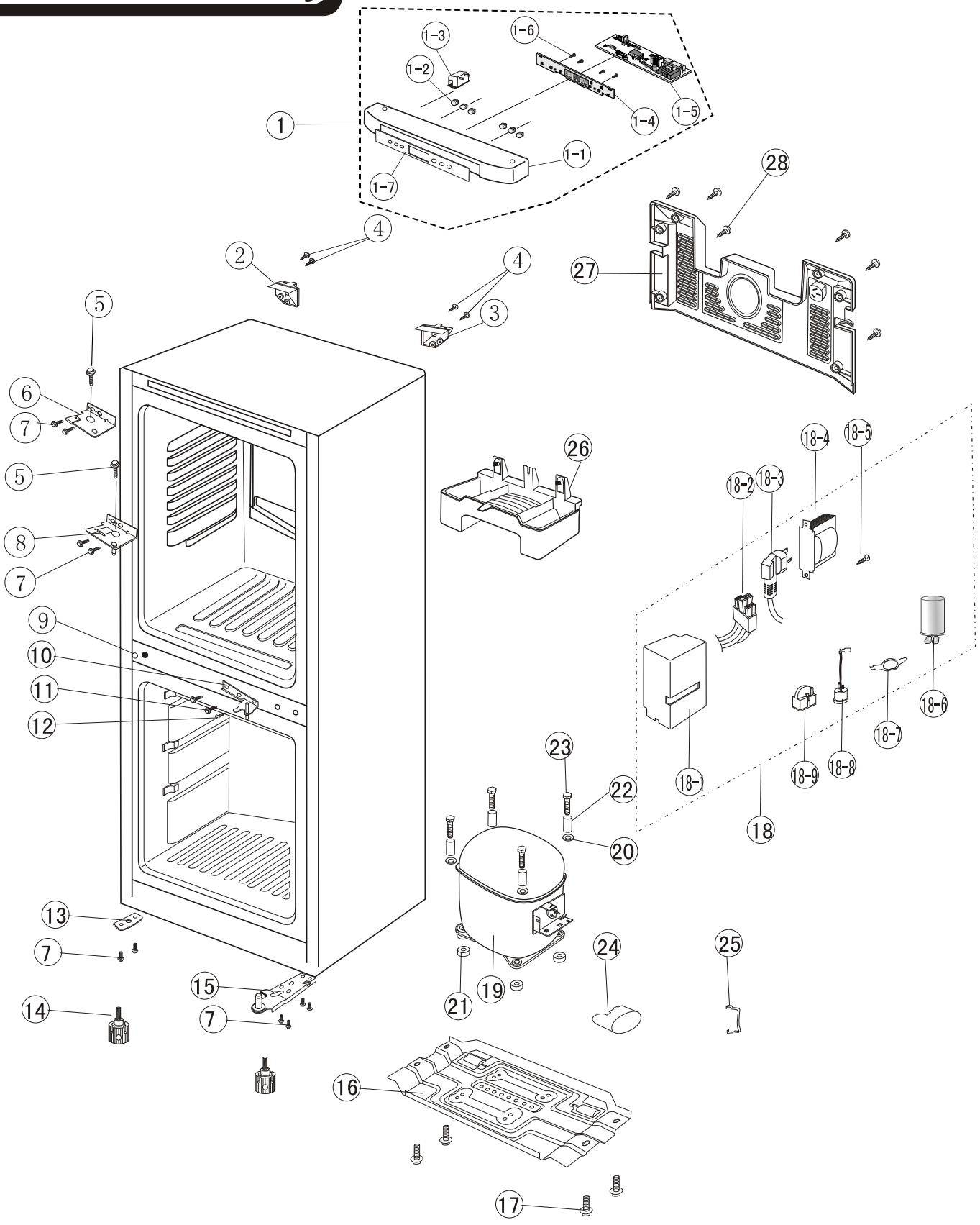
No	Part number	Description	Q'ty	Spec	Remark
1	DA97-01626B	ASSY TRAY-ICE	1	W-PJT,-,-,-,W91527,AS	
1-1	DA61-01444B	FIXER TRAY ICE	1	W-PJT,HIPS,-,W91527,	
1-2	DA63-01850B	TRAY ICE	2	W-PJT,PP,-,-,-,-,W91527,CO	
1-3	DA64-01053B	KNOB-TRAY ICE	2	W-PJT,HIPS,-,-,-,-,W9	
1-4	DA61-01473A	SPRING ETC-ICE MAKER	2	BCD-290,STEEL	
2	DA97-01623B	ASSY TRAY-LITTLE	1	W-PJT,-,-,-,W91527	
3	DA97-01624B	ASSY TRAY-UPP	1	W-PJT,-,-,-,W91527,GP	
4	DA97-01625B	ASSY TRAY-LOW	1	W-PJT,-,-,-,W91527,GP	
5	DA63-01849B	TRAY ICE CUBE	1	W-PJT,HIPS,-,-,-,-,W9	
6	DA97-01631B	ASSY SUPPORT-RAIL	1	RL33EASW,-,-,-,CO	
6-1	DA61-01456B	SUPPORT-RAIL	1	W-PJT,HIPS,-,-,-,W9152	
6-2	DA66-00116A	ROLLER-TRAY,INNER	1	PA66,BCD-210WN,21	
6-3	DA66-00117A	ROLLER-TRAY,OUTOR	1	PA66,BCD-210WN,21	
6-4	DA60-10130B	SCREW-TAP,TH	1	1-4.2X13,FE,FZY(1018)	
7	DA96-00111B	ASSY EVAP	1	RL33E,-,-,-,240V,-,-,-,-	
7-1	DA47-00138A	THERMO FUSE	1	BCD-290,-,220V,1A,72,-,	
7-2	DA32-10105Q	SENSOR ASSY	1	502AT,COMBI-PJT,-10~35,	
7-3	DA47-00139B	HEATER-DEFROST	1	-,W-PJT,-,280W,-,240	
8	DA63-01830B	COVER EVAP-FRONT	1	W-PJT,PP,T2,-,-,-,	
9	DA97-01619B	ASSY COVER EVAP-REAR	1	RL33E,240V,-,-	
9-1	DA63-01831A	COVER EVAP-REAR	1	BCD-290,PP,T2,-,-,-	
9-2	DA61-01441A	CASE MOTOR	1	BCD-290,PP,-,-,-,NTR,-,-	
9-3	DA63-40115A	GROMMET-FAN MOTOR	2	SILICON BLK SR-D3	
9-4	DA31-00084B	MOTOR DC-FAN	1	LIUSHENG,-,-,240V,-,-,	
9-5	DA47-00142B	HEATER-COVER EVAP	1	-,W-PJT,-,7W,-,24	
9-6	DA97-01719A	ASSY-SHAFT BLADE	1	BCD-290,ASSY,-,-	
9-7	DA61-01463A	CASE-G MOTOR A	1	BCD-290,PP,UNINFLAMM	
9-8	DA31-10107C	MOTOR GEARD	1	M2LA49Z,SR-41~5184,20,5	
9-9	DA61-01464A	CASE-G MOTOR B	1	BCD-290,PP,UNINFLAMM	
9-10	DA60-10130A	SCREW-TAP,TH	2	2S-4.2X12 FE FZY (1018	
9-11	DA63-01859A	GASKET-BLADE	1	BCD-290,SILICON,-,61,6	
9-12	DA31-00085A	BLADE	1	BCD-290,PC,-,-,-,T2.5,-	
9-13	DA31-00019A	FAN-PROPELLER	1	-,SR-32,35,NTR,-,-,-,	
9-14	DA61-20128A	SPRING-FAN	1	STS27 ID1.0 PI7.8 FD	
9-15	6002-001067	SCREW-TAPPING	2	BH,+,2S,M4,L14,ZPC(YE	
10	DA32-00012A	SENSOR TEMP	1	-,BCD-290,-,-,-,-,EVAP	
11	DA66-00116A	ROLLER-TRAY,INNER	5	PA66,BCD-210WN,21	
12	DA66-00117A	ROLLER-TRAY,OUTOR	5	PA66,BCD-210WN,21	

8-3 Refrigerating Compartment



No	Part number	Description	Q'ty	Spec	Remark
1	DA97-01622B	ASSY SHELF	3	W-PJT,ASSY	
2	DA97-01621B	ASSY COVER VEG	1	W-PJT,PP+GLASS,-,-,-	
3	DA61-01445A	GUIDE-VEG	1	BCD-290,PP,-,-,-,-,-	
4	DA97-01627B	ASSY CASE VEG	1	W-PJT,-,-,-,W91527,AB	
5	DA61-01457B	PLATE-LAMP	1	W-PJT,A1050H16,T0.4,-,-,	
6	DA47-40121B	LAMP	1	E14/25*17,240V/15W	
7	DA63-01828A	COVER LAMP	1	BCD-290,PP,-,-,-,-,-,W95	
8	DA60-10137A	SCREW-TAPPING	4	PH1-4.2X19 STS+ (GB84	
9	DA97-01620B	ASSY COVER DAMPER-REF	1	W-PJT,-,-,-,-	
9-1	DA63-01829B	COVER DAMPER-REF	1	W-PJT,HIPS,-,-,-,-	
9-2	DA60-00096A	SPACER-DAMPER	1	BCD-290,EPS,30D,-,-,-	
10	DA64-01054A	TRIM-COVER DAMPER	1	BCD-290,ABS,-,-,-	
11	DA63-01842B	COVER-SUCTION,REF	1	W-PJT,PP,-,-,-,-,	
12	DA97-01686E	ASSY-PURIFIER	1	RL33EBSW,W91527,EN,-	
12-1	DA67-00341L	CASE PURIFIER	1	RL33EBSW,EN,ANTI-BACT	
12-2	DA02-00060B	CATALYST	1	-,-,-,7,40,40,-,-,PD,MN,CU	
12-3	DA67-01016A	CAP PURIFIER	1	191GN,HIPS,-,-,-,WHITE	
13	DA67-00345B	CAP-SENSOR	1	W-PJT,HIPS,-,-,-,COOL-WH	

8-4 General Assembly



No	Part number	Description	Q'ty	Spec	Remark
1	DA97-01616C	ASSY COVER-TOP FRONT	1	RL33EBMS,-,-,-	
1-1	DA63-01832A	COVER TOP-FRONT	1	BCD-290,ABS,-,-,-,-	
1-2	DA64-01048A	BUTTON-R	6	BCD-290,ABS,-,-,-,GRAND	
1-3	DA34-00021C	SWITCH DOOR	1	-,HGK2,-,-,-,-,250V/2.5	
1-4	DA41-00206B	PCB-PANEL	1	RL33EBSW,240V/50HZ,-,-,-,	
1-5	DA41-00205A	PCB MAIN	1	BCD-290WN,-,-,-,-,-,-,-,-,	
1-6	6002-001106	SCREW-TAPPING	4	TH,+,SJ2823-87,M3.5,L	
1-7	DA64-01044C	INLAY-TOP FRONT	1	RL33EBMS,ABS CLARIT	
2	DA64-00263K	HANDLE-REAR,L	1	BCD-246NS/231WNS,ABS,	
3	DA64-00262K	HANDLE-REAR,R	1	BCD-246NS/231WNS,ABS,	
4	DA60-10130G	SCREW-TAPPING	4	TH 1-M4.2*9.5 ZN 35#	
5	DA61-01462A	FIXER-SCREW MACHINE	2	BCD-290,45#STEE	
6	DA61-00157E	HINGE-UPP,L	1	BCD-290,SCP1,T3,-,-,-,-	
7	DA60-10130B	SCREW-TAP,TH	6	1-4.2X13,FE,FZY(1018)	
8	DA61-01442A	HINGE-UPP,R	1	BCD-290,SHP1+SM45C,T2.5	
9	DA67-00429F	CAP-SCREW	2	BCD-191NS/202NS/211N,PP,-	
10	DA61-01443A	HINGE-MID	1	BCD-290,SHP1+SM45C,T4,-,-	
11	DA60-10123C	SCREW-TAP TITE	2	1018K M6X24,ZPC2-W	
12	6002-001184	SCREW-TAPPING	2	FH,+,1,M4,L12,ZPC(WHT	
13	DA71-10440A	REINF-LEG,L	1	SCP1,T3.0,ZPC3(YEL)	
14	DA61-00851A	LEG-FRONT	2	BCD-230FBN,POM+MSWR10,-,-	
15	DA61-00849A	HINGE-LOW	1	BCD-230FBN,SHP1+SM45C,T3,	
16	DA61-00842A	BASE COMP	1	BCD-230FBN,SGCC,T1.5,-,-,	
17	DA60-10124A	SCREW-TAP TITE	4	ZPC2-Y 6X16 SR-53EA	
18	DA97-01628B	ASSY CASE-JUN	1	RL33E,240V,UCP2,-,-,-	
18-1	DA61-01487A	CASE JUNCTION	1	BCD-290,PP,-,-,-,-,UN	
18-2	DA39-00282A	WIRE HARNESS-RELAY	1	BCD-290,220/50,-	
18-3	DA39-00196C	CBF-POWER CODE	1	RL33,UCP2,250V,16A,2	
18-4	DA26-00010D	TRANS POWER	1	HUA-FENG,W-PJT,-,-,240V	
18-5	6002-001106	SCREW-TAPPING	1	TH,+,SJ2823-87,M3.5,L	
18-6	DA81-01035A	CAPACITOR	1	HAOYUE,CBB65D,400V~4.5##F	
18-7	DA65-00034A	CLAMPER CORE-RELAY	1	ZBS1115CY,-,-,-,	
18-8	DA35-00059A	RELAY PROTECTOR O/L	1	BIXI,ZBS1115CY,	
18-9	DA35-00058A	RELAY PTC	1	BIXI,QP2-12/B3 ZBS1115CY	

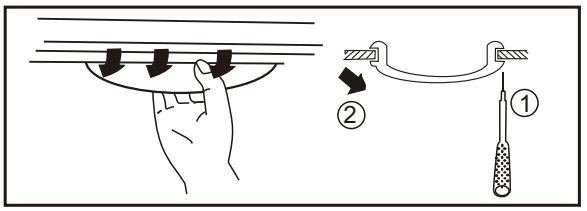
No	Part number	Description	Q'ty	Spec	Remark
19	DA59-00304A	COMPRESSOR	1	ZBS1115CY,220V,50HZ,-,-,	
20	6031-001226	WASHER-PLAIN	4	6-140HV,M6,ID6.4,OD16.	
21	DA63-00609A	GROMMET-COMP	4	NBR,BLK,H16.8,FOR HUAY	
22	DA72-00346A	SLEEVE	4	SPHC,T1.0,FOR AE1360Y	
23	6011-001218	BOLT-HEX	4	M6,L25,GB5781-86,SWRCH18A	
24	DA63-01967A	COVER RELAY	1	ZBS1115Y,NORYL(UL94-V0)	
25	DA65-00035A	CLAMPER CORE-RELAY	1	ZBS1115CY,1CR18N	
26	DA63-01834A	TRAY DRAIN	1	BCD-290,PP,-,-,-,-,H0251	
27	DA63-01827A	COVER COMP	1	BCD-290,ABS,-,-,-,-,-,H0	
28	DA60-10124A	SCREW-TAP TITE	7	ZPC2-Y 6X16 SR-53EA	

9. DISASSEMBLE & ASSEMBLY

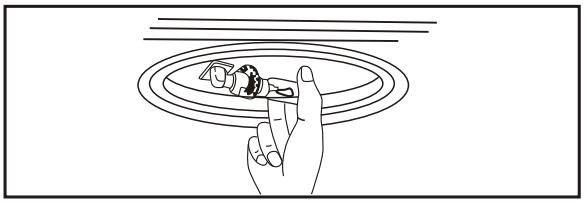
9-1 Change The Refrigerating Compartment Lamp

Alert
When changing the refrigerating compartment lamp, disconnect the power to avoid an electric shock.

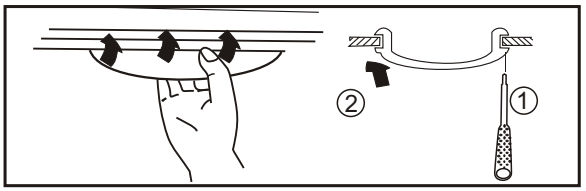
1.Remove the screw from the lampshade and unclench two latches at one-side with a 1-shaped screwdriver to take off the lampshade.



2.Turn off the lamp.

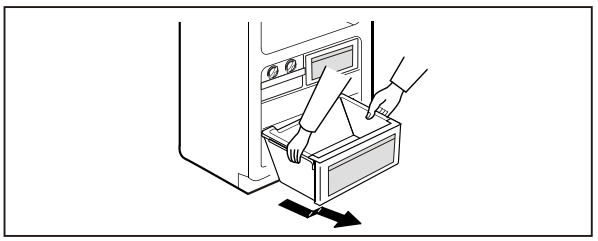


3.When the new lamp is fitted, setup the lampshade latches from right to left as well as the screws.

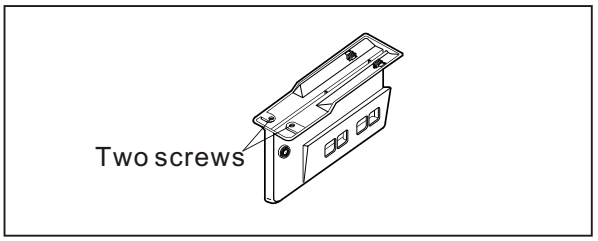


9-2 Disassembly of the Freeze Compartment Air-duct Subassembly

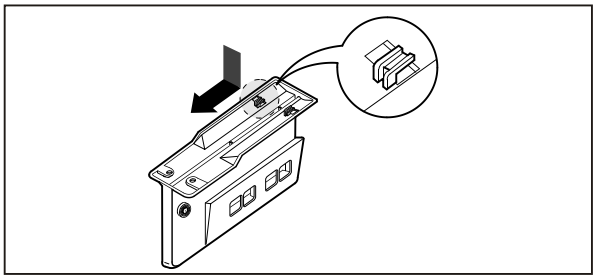
1. Take out the freeze compartment drawer.



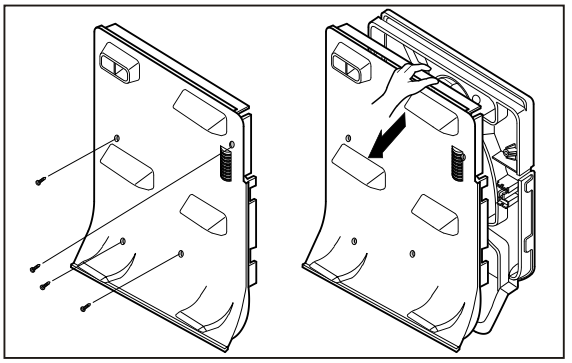
2.Remove the two screws from the air-duct subassembly framework.



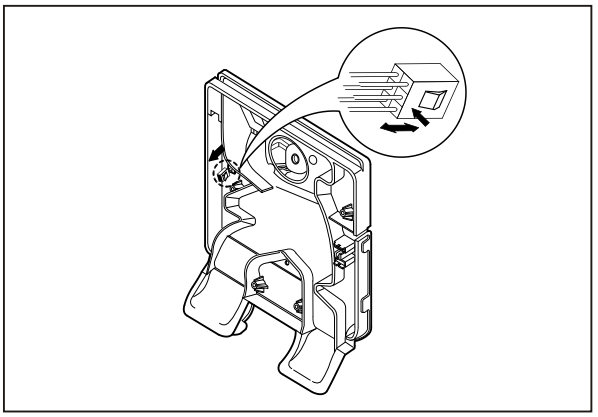
3. Pull out ice box subassembly framework.



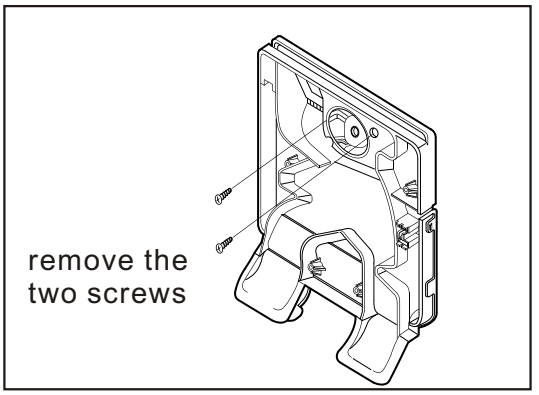
4.Remove the four screws from the air-duct front cover that shall be drawn out in the direction of the arrow.



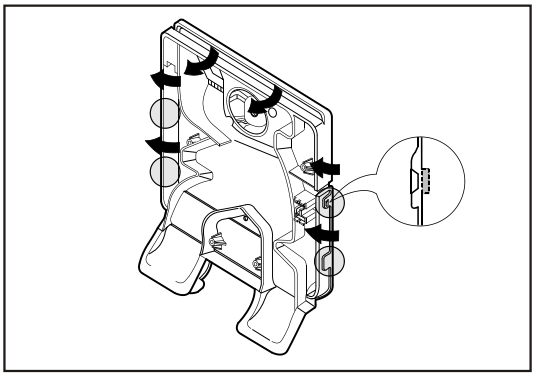
5.Hold down the terminal hook and draw out the terminal in the direction of the arrow.



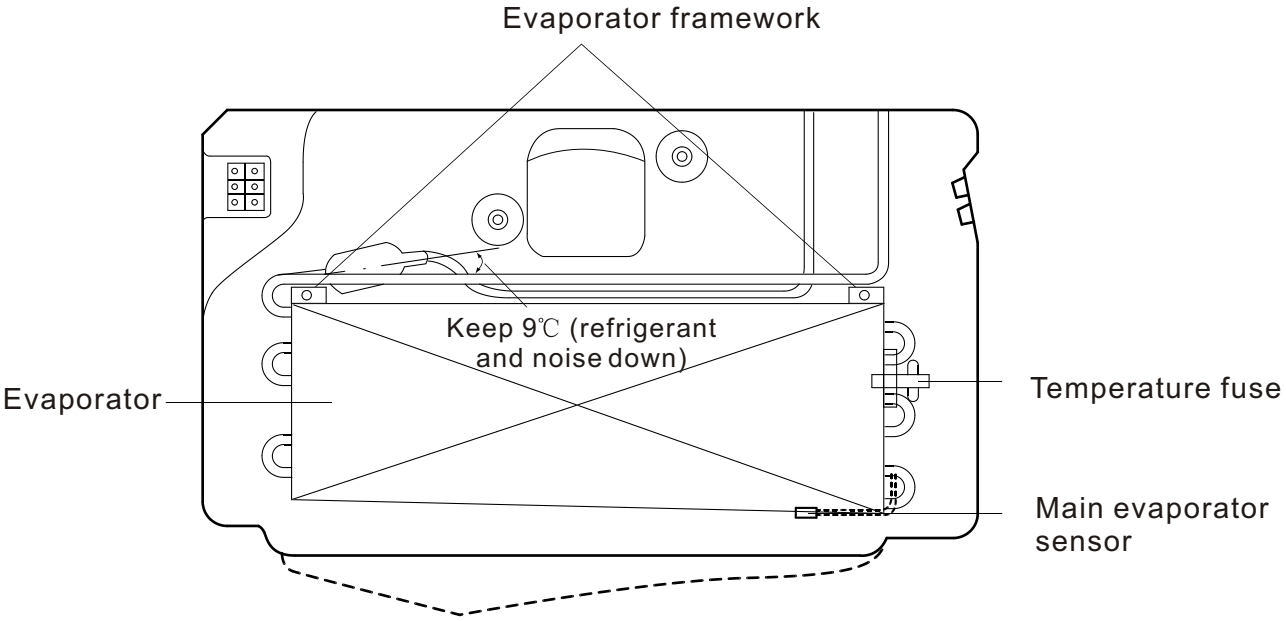
6.Remove the two screws from the air-duct subassembly back cover.



7. Take apart the air-duct subassembly in the direction of arrow and take down the plug-ins, such as sensors etc.

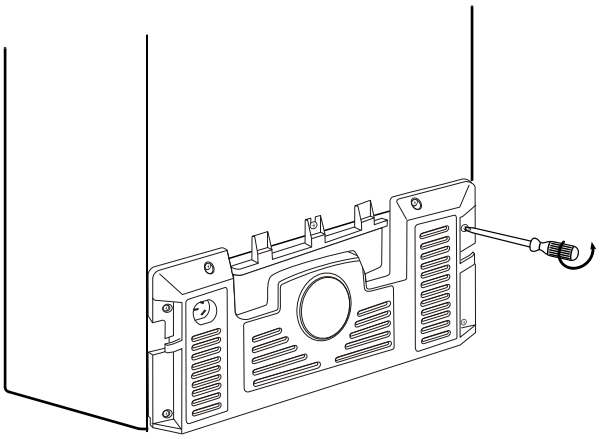


■ Assembly of The Freeze Air-duct Subassembly



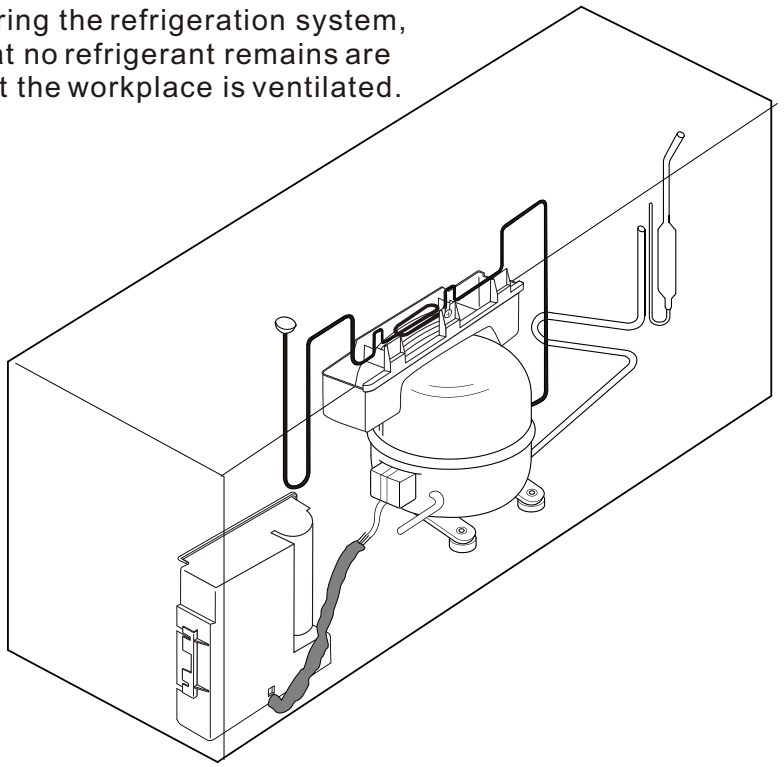
9-3 Assembly of The Compressor and The Terminal Box

1.Remove the screws from the compressor cover.



2.The Compressor Assembly

Alert: Prior to repairing the refrigeration system, make sure that no refrigerant remains are found and that the workplace is ventilated.

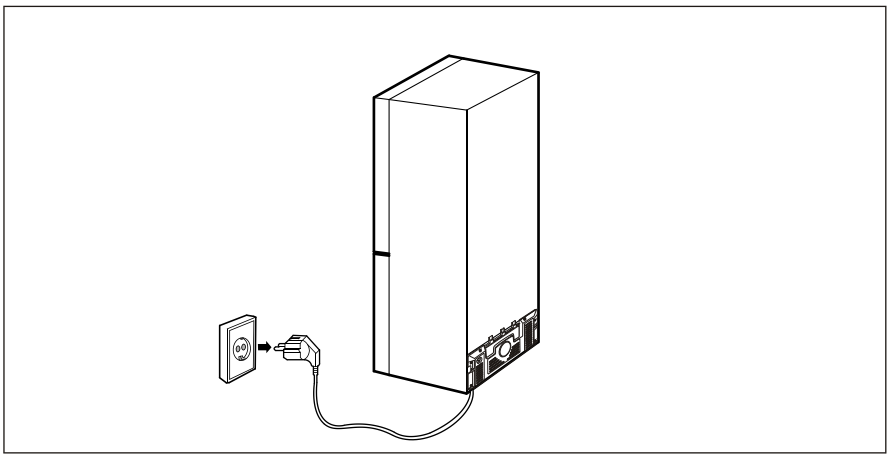


Alert: Prior to repairing the refrigeration system, make sure that no refrigerant remains are found and that the workplace is ventilated and safe.

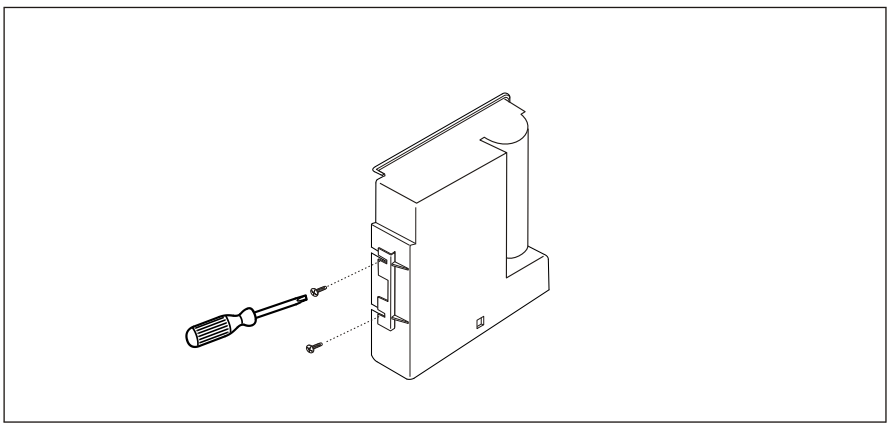
9-4 Terminal Box Assembly

Alert
Remove the plug from the power socket when replacing electric elements.

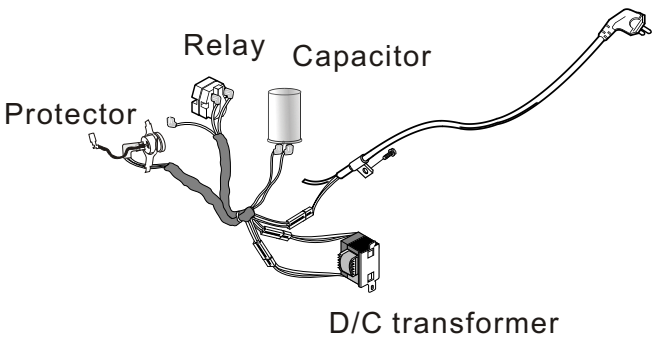
1.Disconnect the power supply.



2.Take off the terminal box cover with a screwdriver.

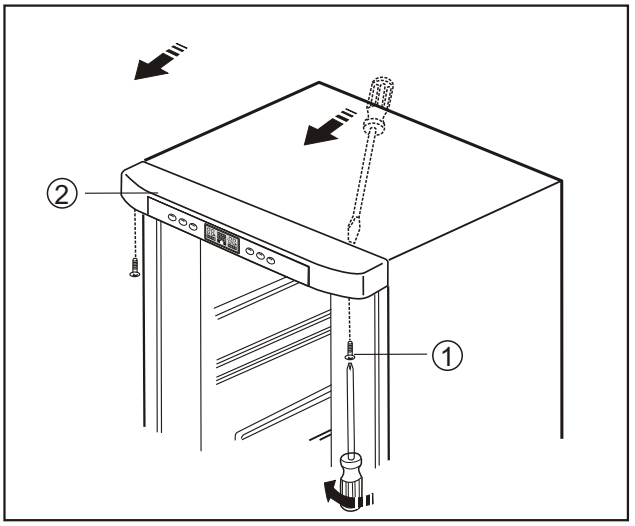


3.Terminal box assembly

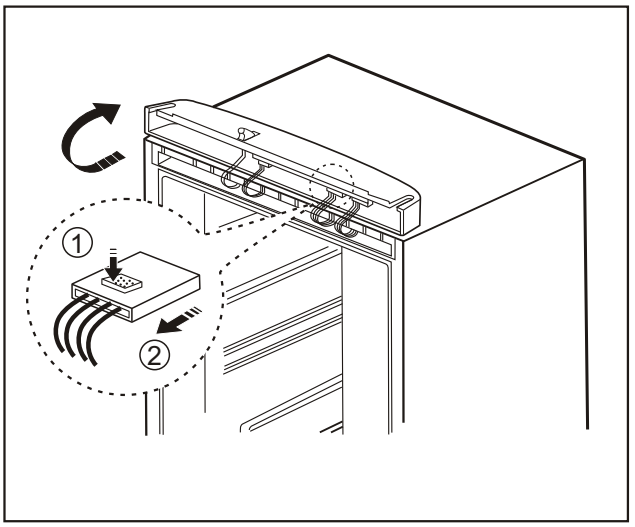


9-5 Top Front Cover Disassembly

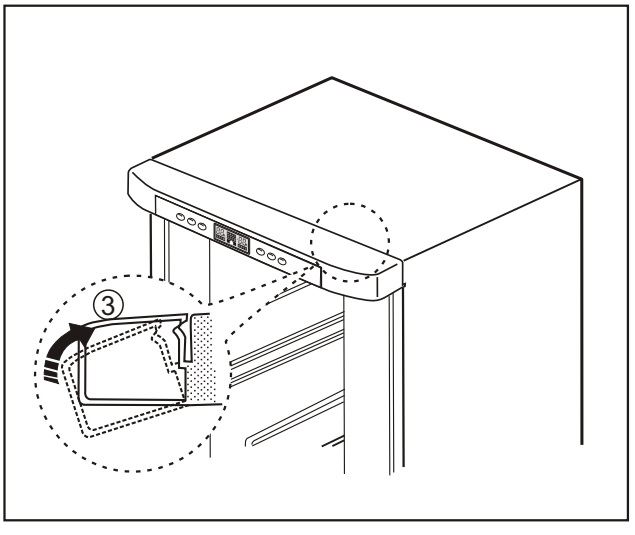
- Open the door and remove the screw① with a cross-head screwdriver.
- Unclench the top front cover② with a 1-shaped screwdriver.



- Repair and replace the electric parts inside the top front cover.

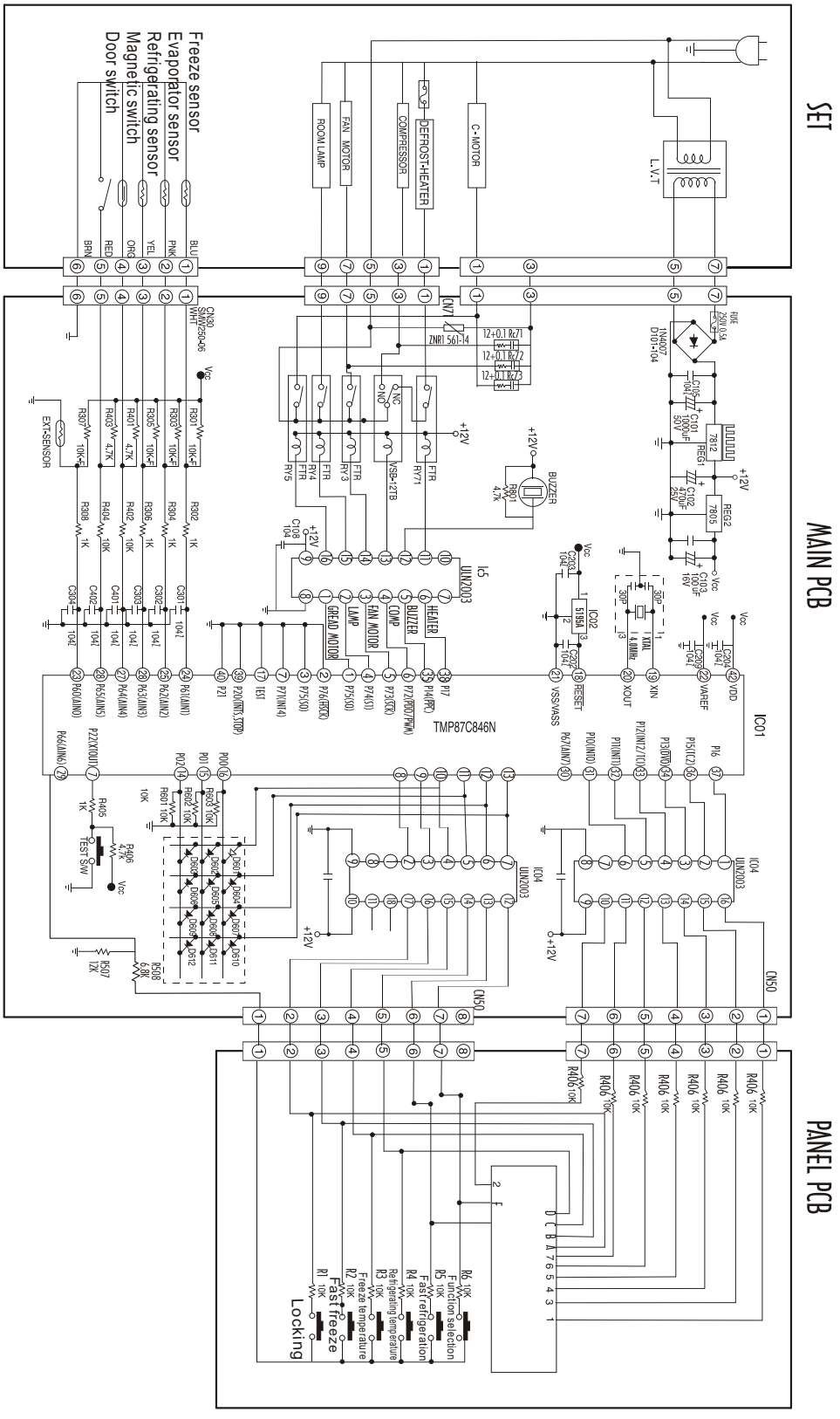


- Set up the top front cover by pressing it into the hook③(the sound Kaca will be heard as it reaches the right position).



10. CIRCUIT DIAGRAM

10-1 Luxury Type



SAMSUNG